ICOM®

SERVICE MANUAL

UHF TRUNKED RADIO

IC-F43TR

Icom Inc.

INTRODUCTION

This service manual describes the latest service information for the **IC-F43TR** UHF TRUNKED RADIO at the time of publication.

MODEL	VERSION	SYMBOL	FREQUENCY
IC-F43TR	10 KEY	TRU–02	400–470 MHz
		TRU–82	
	4 KEY	SRU–02	
		SRU–82	
	10 KEY	TRU–03	450–512 MHz
		TRU–83	
	4 KEY	SRU–03	
		SRU–83	

To upgrade quality, all electrical or mechanical parts and internal circuits are subject to change without notice or obligation.

DANGER

NEVER connect the transceiver to an AC outlet or to a DC power supply that uses more than 8 V. Such a connection could cause a fire or electric hazard.

DO NOT expose the transceiver to rain, snow or any liquids.

DO NOT reverse the polarities of the power supply when connecting the transceiver.

DO NOT apply an RF signal of more than 20 dBm (100mW) to the antenna connector. This could damage the transceiver's front end.

ORDERING PARTS

Be sure to include the following four points when ordering replacement parts:

1. 10-digit order numbers
2. Component part number and name
3. Equipment model name and unit name
4. Quantity required

<**SAMPLE ORDER**>

5030002610 LCD	FX-2721 LCD	IC-F43TR	Main unit	5 pieces
8810009220 Screw	BO 2x8 ZK	IC-F43TR	Chassis	10 pieces

Addresses are provided on the inside back cover for your convenience.

REPAIR NOTES

1. Make sure a problem is internal before disassembling the transceiver.
2. **DO NOT** open the transceiver until the transceiver is disconnected from its power source.
3. **DO NOT** force any of the variable components. Turn them slowly and smoothly.
4. **DO NOT** short any circuits or electronic parts. An insulated turning tool **MUST** be used for all adjustments.
5. **DO NOT** keep power ON for a long time when the transceiver is defective.
6. **DO NOT** transmit power into a signal generator or a sweep generator.
7. **ALWAYS** connect a 30 dB to 40 dB attenuator between the transceiver and a deviation meter or spectrum analyzer when using such test equipment.
8. **READ** the instructions of test equipment thoroughly before connecting equipment to the transceiver.

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TABLE OF CONTENTS

SECTION 1 SPECIFICATIONS

SECTION 2 INSIDE VIEWS

SECTION 3 DISASSEMBLY INSTRUCTIONS

SECTION 4 CIRCUIT DESCRIPITON

4-1 RECEIVER CIRCUITS 4-1
4-2 TRANSMITTER CIRCUITS 4-2
4-3 PLL CIRCUITS 4-3
4-4 POWER SUPPLY CIRCUITS 4-4
4-5 OTHER CIRCUITS 4-5
4-6 PORT ALLOCATIONS 4-5

SECTION 5 ADJUSTMENT PROCEDURES

5-1 PREPARATION 5-1
5-2 SOFTWARE ADJUSTMENTS 5-4

SECTION 6 PARTS LIST

SECTION 7 MECHANICAL PARTS AND DISASSEMBLY

SECTION 8 SEMI-CONDUCTOR INFORMATION

SECTION 9 BOARD LAYOUTS

9-1 MAIN UNIT 9-1
9-2 PA UNIT 9-3
9-3 ANT UNIT 9-3
9-4 FUSE UNIT 9-3

SECTION 10 BLOCK DIAGRAM

SECTION 11 VOLTAGE DIAGRAM

11-1 MAIN UNIT 11-1
11-2 PA / ANT / FUSE UNITS 11-3

SECTION 1 SPECIFICATIONS

■ GENERAL

- Frequency coverage : 400.000–470.000 MHz [H]
  450.000–512.000 MHz [L]
- Mode : FM
- Type of emission : 16K0F3E (25.0 kHz) WIDE
  11K0F3E (12.5 kHz) NARROW
- Number of conventional channels : 250 ch
- Antenna connector : 50 Ω
- Operating temperature range : –30˚C to +60˚C (–22˚F to +140˚F)
- Power supply requirement : 7.2 V DC nominal (negative ground)
- Current drain (at 7.2 V DC) :

RECEIVING		TRANSMITTING	
Stand-by	Max. audio	High (4 W)	Low (1 W)
85 mA	300 mA	1.7 A	0.8 A

- Dimensions (projections not included): 53.0(W)×120.0(H)×32.5(D) mm / 2 3/32(W) × 3 23/32(H) × 1 9/32(D) in
- Weight (Including BP-232) : Approximately 320 g (11 9/32 oz)

■ TRANSMITTER

- Output power (at 7.2 V DC) : High: 4 W, Low: 1 W
- Modulation : Variable reactance frequency modulation
- Maximum permissible deviation : ±5.0 kHz (Wide), ±2.5 kHz (Narrow)
- Frequency error : ±2.5 ppm
- Spurious emissions : 70 dB (typical)
- Adjacent channel power : 70 dB min. (Wide), 60 dB min. (Narrow)
- Audio harmonic distortion : 3% typical (AF 1kHz, 40% deviation)
- Hum and Noise : 40 dB min (46 dB typical) for Wide
  34 dB min (40 dB typical) for Narrow
- Limiting charact of modulator : 60–100 % of maximum deviation
- Microphone impedance : 2.2 kΩ

■ RECEIVER

- Receive system : Double conversion superheterodyne system
- Intermediate frequencies : 1st: 46.35 MHz, 2nd: 450 kHz
- Sensitivity : 0.25 µV (–119 dBm) typical at 12 dB SINAD
- Adjacent channel selectivity : 70 dB min (75 dB typical) for Wide
  60 dB min (65 dB typical) for Narrow
- Spurious response : 70 dB
- Intermodulation rejection ratio : 70 dB min (74 dB typical)
- Hum and Noise : 40 dB min (45 dB typical) for Wide
  34 dB min (40 dB typical) for Narrow
- Audio output power : 0.5 W typical at 5% distortion with an 8 Ω load
- Squelch sensitivity (at threshold) : 0.25 µV typical
- Output impedance (Audio) : 8 Ω

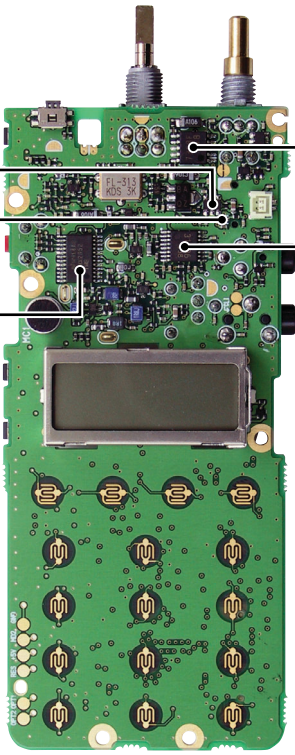
Specifications are measured in accordance with EIA-152-C/204D, TIA-603.

All stated specifications are subject to change without notice or obligation.

SECTION 2 INSIDE VIEWS

• MAIN UNIT

TOP VIEW



APC amplifier
(IC16: TA75S01F)

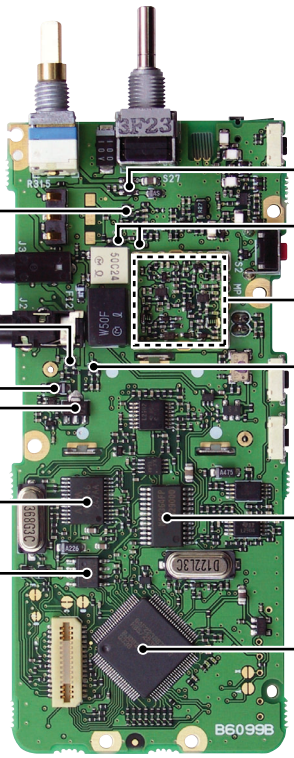
Mute switch
(D29: MA2S111)

PLL IC
(IC21: LMX2352TM)

AF amplifier
(IC15: TA7568F)

IF IC
(IC9: TA31136FN)

BOTTOM VIEW



IF amplifier
(Q7: 2SC4215)

R5 Regulator
(Q25: 2SA1577)

S5 Regulator
(Q26: 2SB1132
Q27: XP6501)

Base band IC
(IC14: AK2346)

EEPROM
(IC10: 24LC64T)

+5 Regulator
(IC17: NJM2870)

TX/RX switch
(D16,D17: MA77)

VCO circuit

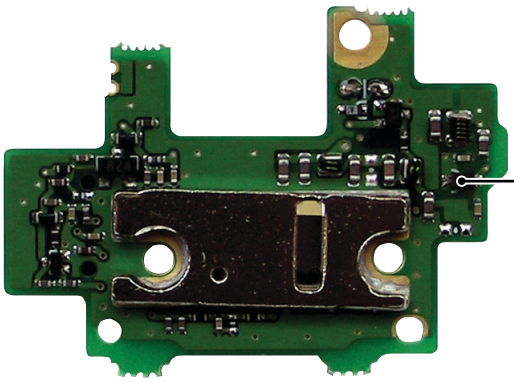
T5 Regulator
(Q24: 2SA1577)

D/A converter
(IC12: M62364FP)

CPU
(IC22: HD64F2238BTF13)

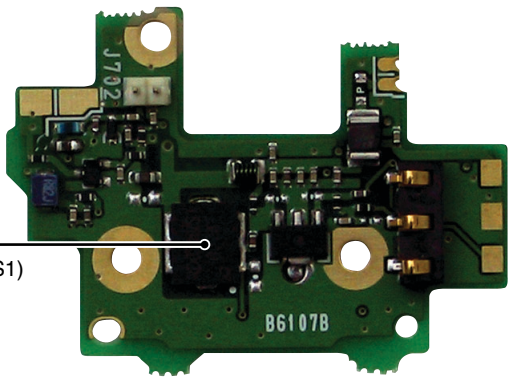
• PA UNIT

TOP VIEW



Antenna switch
(D701: 1SV307)

BOTTOM VIEW

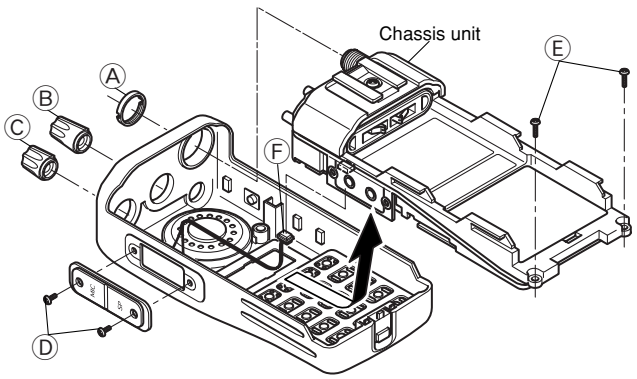


Power amplifier
(Q701: RD07MVS1)

SECTION 3 DISASSEMBLY INSTRUCTIONS

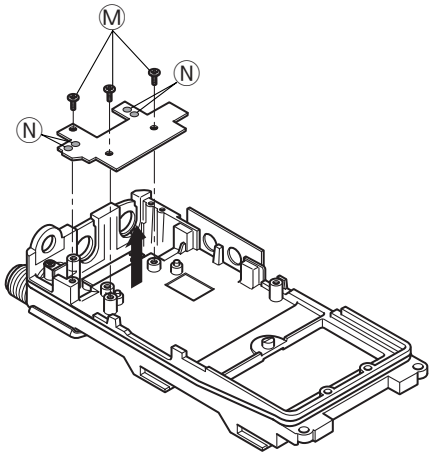
• REMOVING THE CHASSIS UNIT

① Unscrew 1 nut Ⓐ, and remove 2 knobs Ⓑ,Ⓒ.
② Unscrew 2 screws Ⓓ.
③ Unscrew 2 screws Ⓔ.
④ Take off the chassis unit in the direction of the arrow.
⑤ Unplug the connector Ⓕ from the chassis unit.



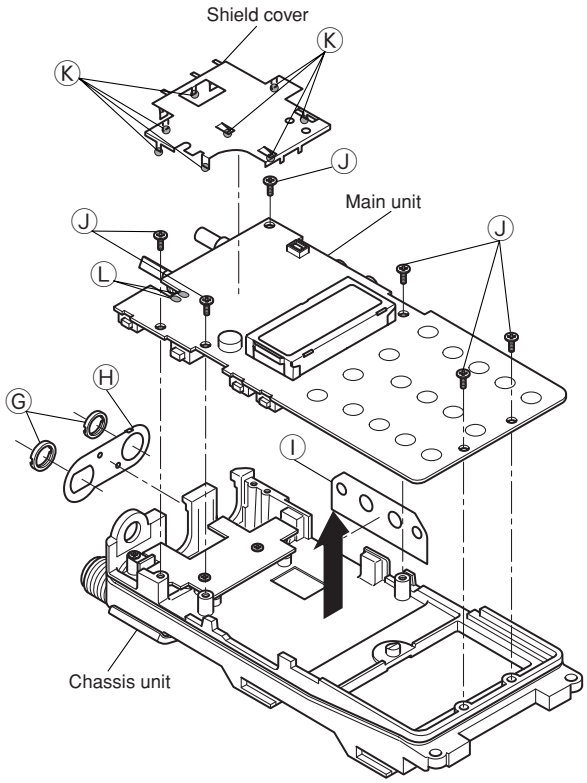
• REMOVING THE PA UNIT

① Unscrew 3 screws Ⓜ.
② Unsolder 4 points Ⓝ, and take off the PA unit in the direction of the arrow.



• REMOVING THE MAIN UNIT

① Unscrew 2 nuts Ⓖ, and remove the top plate Ⓗ.
② Remove the side plate Ⓘ.
③ Unscrew 6 screws Ⓙ.
④ Unsolder 8 points Ⓚ, and remove the shield cover.
⑤ Unsolder 2 points Ⓛ, and take off the main unit in the direction of the arrow.



SECTION 4 CIRCUIT DESCRIPTION

4-1 RECEIVER CIRCUITS

4-1-1 ANTENNA SWITCHING CIRCUIT (PA UNIT)

The antenna switching circuit functions as a low-pass filter while receiving and a resonator circuit while transmitting. This circuit does not allow transmit signals to enter the receiver circuits.

Received signals enter the antenna connector (CHASSIS; J1) and pass through the low-pass filter (ANT unit). The filtered signals are passed through the $\lambda/4$ type antenna switching circuit (D701, D704, L712) and then applied to the RF circuit.

4-1-2 RF CIRCUIT (MAIN UNIT)

The RF circuit amplifies signals within the range of frequency coverage and filters out-of-band signals.

The signals from the antenna switching circuit pass through the two-stage tunable bandpass filters (D19, D20, D24, D25, L7, L8, C27, C369). The filtered signals are amplified at the RF amplifier (Q5) and then passed through the another two-stage tunable bandpass filters (D14, D15, C39, C45) to suppress unwanted signals. The filtered signals are applied to the 1st mixer circuit.

D14, D15, D19, D20, D24, D25 employ varactor diodes, that are controlled by the CPU via the D/A converter (IC12), to track the bandpass filter. These varactor diodes tune the center frequency of an RF pass band for wide bandwidth receiving and good image response rejection.

4-1-3 1ST MIXER AND 1ST IF CIRCUITS (MAIN UNIT)

The 1st mixer circuit converts the received signal into fixed frequency of the 1st IF signal with the PLL output frequency. By changing the PLL frequency, only the desired frequency passes through a crystal filter at the next stage of the 1st mixer.

The RF signals from the bandpass filter are mixed with the 1st LO signals, where come from the RX VCO circuit via the low-pass filter (L46, C396, C397), at the 1st mixer circuit (Q6) to produce a 46.35 MHz 1st IF signal. The 1st IF signal is passed through a monolithic filter (FI1) in order to obtain selection capability and to pass only the desired signals. The filtered signal is applied to the 2nd IF circuit after being amplified at the 1st IF amplifier (Q7).

4-1-4 2ND IF AND DEMODULATOR CIRCUITS (MAIN UNIT)

The 2nd mixer circuit converts the 1st IF signal into a 2nd IF signal. The double-conversion superheterodyne system (which convert receive signals twice) improves the image rejection ratio and obtains stable receiver gain.

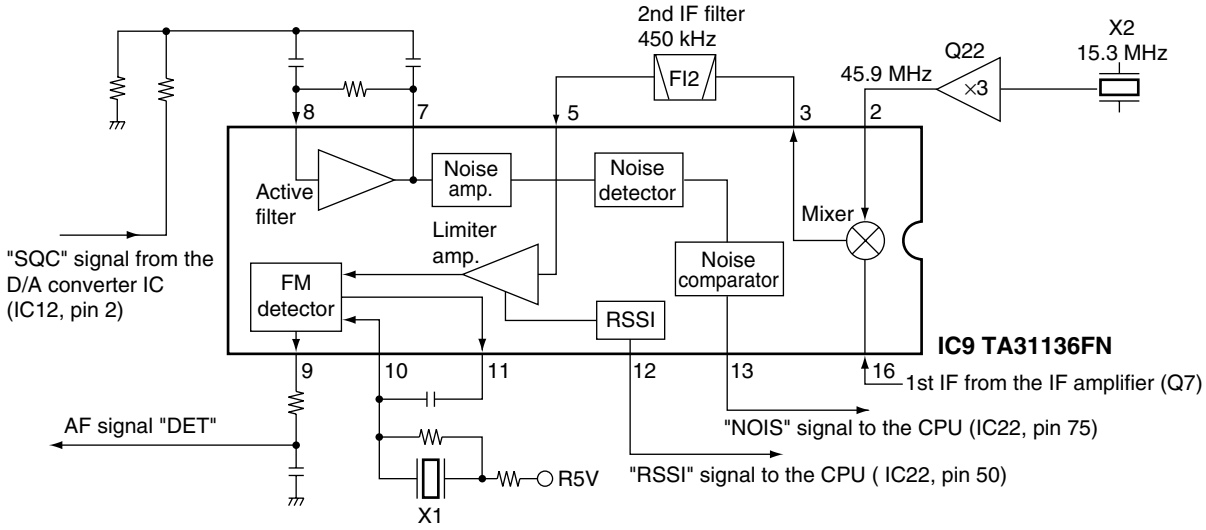
The 1st IF signal from the IF amplifier (Q7) is applied to the 2nd mixer section of the FM IF IC (IC9, pin 16), and is mixed with the 2nd LO signal to be converted into a 450 kHz 2nd IF signal.

The FM IF IC (IC9) contains the 2nd mixer, 2nd local oscillator, limiter amplifier, quadrature detector, active filter and noise amplifier circuits. A 2nd LO signal (45.9 MHz) is produced at the PLL circuit by tripling it's reference frequency (15.3 MHz).

The 2nd IF signal from the 2nd mixer (IC9, pin 3) passes through the ceramic filter (FI2) to remove unwanted heterodyned frequencies. It is then amplified at the limiter amplifier section (IC9, pin 5) and applied to the quadrature detector section (IC9, pins 10, 11) to demodulate the 2nd IF signal into AF signals.

The demodulated AF signals are output from pin 9 (IC9) and applied to the AF circuit via the receiver mute circuit.

• 2ND IF DEMODULATOR CIRCUITS



4-1-5 AF AMPLIFIER CIRCUIT (MAIN UNIT)

The AF amplifier circuit amplifies the demodulated AF signals to drive a speaker. This transceiver employs the base band IC which is composed of pre-amplifier, expander, scrambler, MSK de-modulator, etc. at the AF amplifier section.

The AF signals from the FM IF IC (IC9, pin 9) are amplified at the AF amplifier section of the base band IC (IC14, pin 23) and are then applied to the low-pass filter section of it.

The filtered signals passes through the high-pass filter to suppress unwanted harmonic components. The signals pass through (or bypass) scrambler and expander sections. The signals are amplified at the amplifier section of the base band IC (IC14).
The amplified signals pass through the AF volume (R315), and are then applied to the AF power amplifier (IC15) to drive the speaker.

4-1-6 RECEIVE MUTE CIRCUITS (MAIN UNIT)

• NOISE SQUELCH

A squelch circuit cuts out AF signals when no RF signals are received. By detecting noise components in the AF signals, the squelch circuit switches the AF mute switch.

Some noise components in the AF signals from the FM IF IC (IC9, pin 9) are passed through the D/A converter (IC12, pin 1). The signals are applied to the active filter section in the FM IF IC (IC9, pin 8). The active filter section filters and amplifies noise components. The amplified signals are converted into the pulse-type signals at the noise detector section. The detected signals output from pin 13 (NOIS) via the noise comparator section.

The “NOIS” signal from the FM IF IC is applied to the CPU (IC22, pin 75). Then the CPU analyzes the noise condition and outputs the AF mute signal as “AFON” from the pin 70 to the AF power controller (Q41, Q42).

• CTCSS AND DTCS

The tone squelch circuit detects AF signals and opens the squelch only when receiving a signal containing a matching subaudible tone (CTCSS or DTCS). When tone squelch is in use, and a signal with a mismatched or no subaudible tone is received, the tone squelch circuit mutes the AF signals even when noise squelch is open.

A portion of the “DET” AF signals from the FM IF IC (IC9, pin 9) passes through the low-pass filter (IC19, pin 5) to remove AF (voice) signals, and are then applied to the amplifier (IC19, pin 3). The amplified signals are applied to the CTCSS or DTCS decoder inside of the CPU (IC22, pin 46) via the “CDEC” line. The CPU outputs AF mute control signal and AF power supply circuits (Q41, Q42) control signals via the “AFON” line.

4-2 TRANSMITTER CIRCUITS

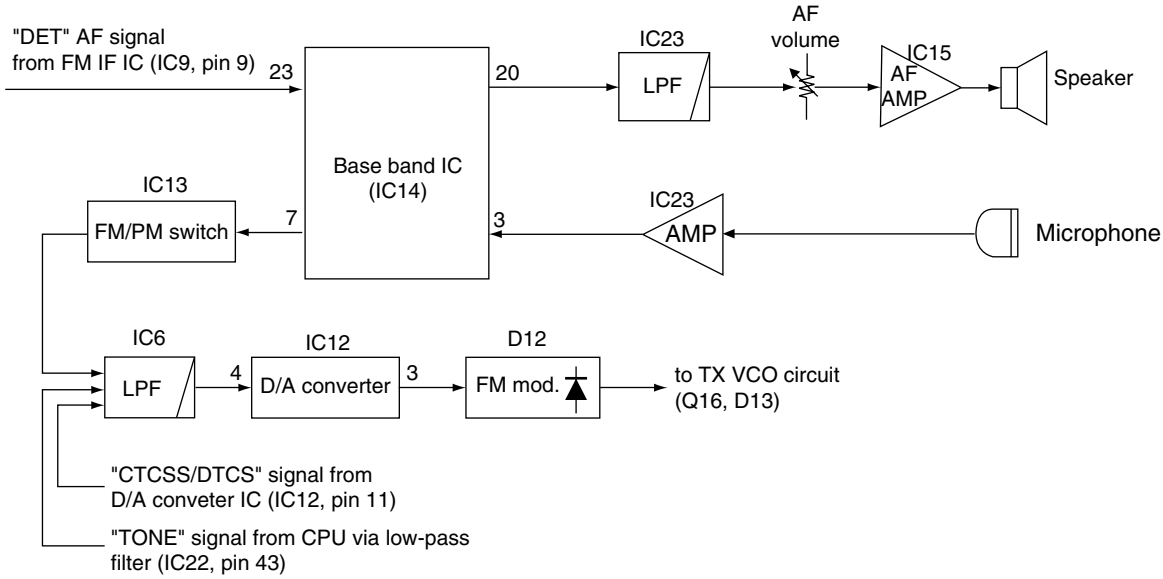
4-2-1 MICROPHONE AMPLIFIER CIRCUIT (MAIN UNIT)

The microphone amplifier circuit amplifies audio signals within +6 dB/octave pre-emphasis characteristics from the microphone to a level needed for the modulation circuit.
This transceiver employs the base band IC which is composed of microphone amplifier, compressor, scrambler, limiter, splatter filter, MSK modulator, etc. at the microphone amplifier section.

The AF signals (MIC) from the microphone (MC1) are applied to the amplifier (IC23, pins 6, 7). The amplified signals are applied to the microphone amplifier section of the base band IC (IC14, pins 3, 4). The amplified signals are passed through or bypass the compressor, scrambler sections of IC14, and are then passed through the high-pass, limiter amplifier, splatter filter sections of IC14.
The filtered AF signals are applied to the FM/PM switch (IC13, pin 6), and pass through the low-pass filter (IC6, pin 2).

The filtered signals are applied to the D/A converter (IC12, pin 4). The output signals from the D/A converter (IC12, pin 3) are applied to the modulation circuit (D12).

• AF AND MIC AMPLIFIER CIRCUIT



4-2-2 MODULATION CIRCUIT (MAIN UNIT)

The modulation circuit modulates the VCO oscillating signal (RF signal) using the microphone audio signals.

The AF signals from the D/A converter (IC12, pin 3) change the reactance of varactor diode (D12) to modulate the oscillated signal at the TX VCO circuit (Q16, D10). The modulated VCO signal is amplified at the buffer amplifiers (Q15, Q29) and is then applied to the drive amplifier circuit via the T/R switch (D16).

The CTCSS/DTCS signals ("CENC0", "CENC1", "CENC2" from the CPU (IC22, pins 13, 15, 16) pass through the low-pass filter (IC6, pins 12, 14), and are then applied to the D/A converter via the "TONC" line (IC12, pin 12). The output signal from the D/A converter (IC12, pin 11) are mixed with "MOD" signal at the low-pass filter (IC6), and are then applied to the D/A converter again (IC12, pin 4).

4-2-3 DRIVE/POWER AMPLIFIER CIRCUITS (PA UNIT)

The drive/power amplifier circuits amplify the VCO oscillating signal to an output power level.

The signal from the VCO circuit passes through the T/R switch (MAIN unit; D16), and is amplified at the YGR (Q703, Q704), drive (Q702), power (Q701) amplifiers to obtain 4 W of RF power (at 7.2 V DC).

The amplified signal is passed through the low-pass filter (L704, C711, C712, C713, C755), power detector (D702, D703), antenna switching circuit (D701) and other low-pass filters (PA unit; L709, C744, C745), (ANT unit; L801, L802, C802, C803, C804, C805), and is then applied to the antenna connector (CHASSIS unit; J1).

The bias current of the drive (Q702) and power (Q701) amplifiers are controlled by the APC circuit.

4-2-4 APC CIRCUIT (PA AND MAIN UNITS)

The APC circuit protects the drive and power amplifiers from excessive current drive, and selects output power of HIGH or LOW.

The power detector circuit (PA unit; D702, D703) detects the transmit power output level and converts it into DC voltage. The output voltage is at a minimum level when the antenna impedance is matched at 50 Ω and is increased when it is mismatched.

The detected voltage is applied to the differential amplifier (MAIN unit; IC16; pin 3), and the "T2" signal from the D/A converter (MAIN unit; IC12, pin 23), controlled by the CPU (MAIN unit; IC22), is applied to the other input for reference. When antenna impedance is mismatched, the detected voltage exceeds the power setting voltage. Then the output voltage of the differential amplifier (MAIN unit; IC16, pin 4) controls the input current of the drive (PA unit; Q702) and power (PA unit; Q701) amplifiers to reduce the output power.

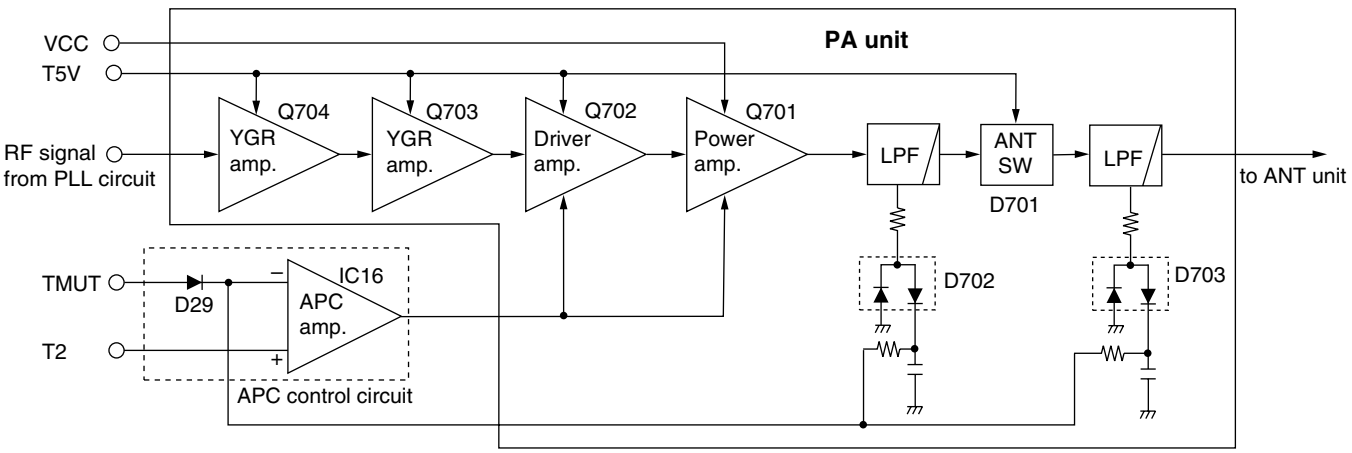
4-3 PLL CIRCUITS

4-3-1 PLL CIRCUIT (MAIN UNIT)

A PLL circuit provides stable oscillation of the transmit frequency and receive 1st LO frequency. The PLL output compares the phase of the divided VCO frequency to the reference frequency. The PLL output frequency is controlled by the divided ratio (N-data) of a programmable divider.

The PLL circuit contains the TX/RX VCO circuits (Q16, Q17, D9-D13). The oscillated signal is amplified at the buffer amplifiers (Q14, Q15) and then applied to the PLL IC (IC21, pin 6) after being passed through the low-pass filter (L32, C206, C208).

• APC CIRCUIT



The PLL IC contains a prescaler, programmable counter, programmable divider and phase detector, etc. The entered signal is divided at the prescaler and programmable counter section by the N-data ratio from the CPU. The divided signal is detected on phase at the phase detector using the reference frequency.
If the oscillated signal drifts, its phase changes from that of the reference frequency, causing a lock voltage change to compensate for the drift in the oscillated frequency.

4-3-2 VCO CIRCUIT (MAIN UNIT)

The VCO circuit contains a separate RX VCO (Q17, D9) and TX VCO (Q16, D10, D13). The oscillated signal is amplified at the buffer amplifiers (Q15, Q29) and is then applied to the T/R switch (D16, D17). Then the receive 1st LO (Rx) signal is applied to the 1st mixer (Q6) and the transmit (Tx) signal to the YGR amplifier circuit (PA unit; Q704).

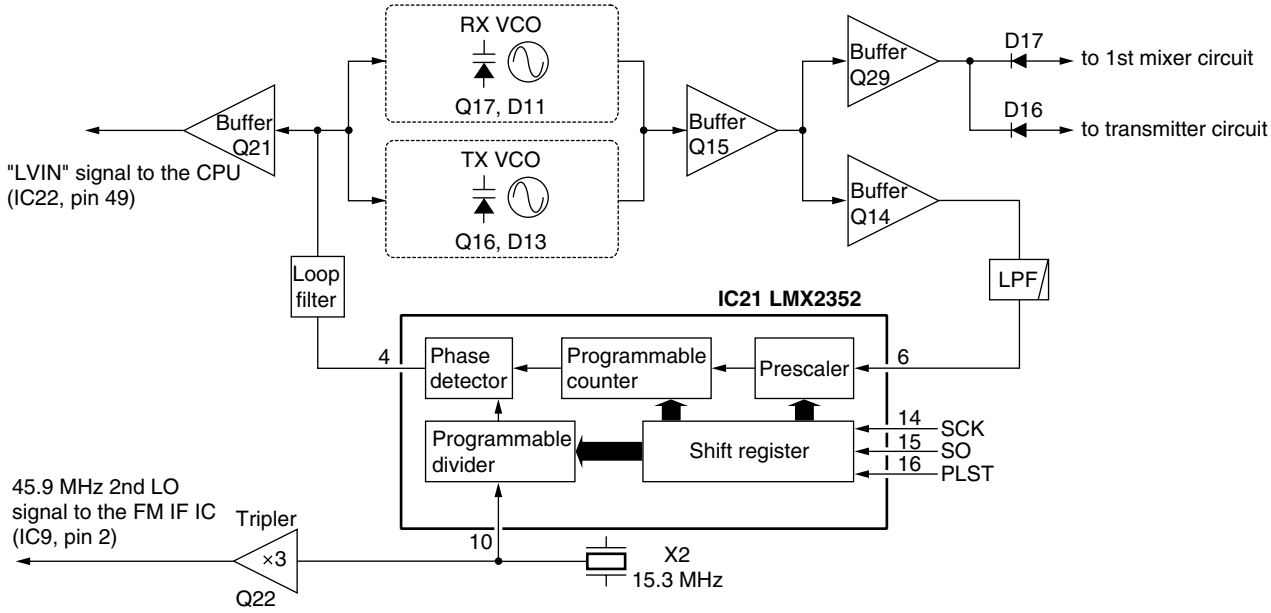
A portion of the signal from the buffer amplifier (Q15) is feed back to the PLL IC (IC21, pin 6) via the buffer amplifier (Q14) as the comparison signal.

4-4 POWER SUPPLY CIRCUIT

4-4-1 MAIN UNIT VOLTAGE LINE

LINE	DESCRIPTION
VCC	The voltage from the connected battery pack.
+5V	Common 5 V converted from the VCC line at the +5 regulator circuit (IC7). The output voltage is supplied to buffer amplifiers (Q21), PLL IC (IC21),etc.
S5V	Common 5 V converted from the VCC line at the S5 regulator circuit (Q26–Q28). The output voltage is supplied to the ripple filter (Q20), etc.
R5V	Receive 5 V converted from the S5V line at the R5 regulator circuit (Q25). The output voltage is supplied to the tripler (Q22), FM IF IC (IC9), IF amplifier (Q7), 1st mixer (Q6), RF amplifier (Q5), etc.
T5V	Transmit 5 V converted from the S5V line at the T5 regulator circuit (Q24). The output voltage is supplied to the APC amplifier (IC16), PA unit etc.

• PLL CIRCUIT



4-5 OTHER CIRCUITS

4-5-1 COMPOUNDER CIRCUIT (MAIN UNIT)

IC-F43TR have compounder circuit which can improve S/N ratio and become wide dynamic range to suppress the transmitting signal and to extend receiving signal. The circuit is composed of the base band IC (IC14).

(1) IN CASE OF TRANSMITTING

The audio signals from the microphone are applied to the base band IC (IC14, pin 3) via microphone amplifier (IC23). The signals are amplified at the amplifier section, and are then applied to the compressor circuit to compress the audio signals. The signals pass through (or bypass) scrambler section, and are then amplified at limiter amplifier section after being passed through the high-pass filter. The amplified signals pass through the low-pass filter section, and are then applied to the modulation circuit (D12) via the FM/PM switch (IC13), low-pass filter (IC6) and D/A converter (IC12).

(2) IN CASE OF RECEIVING

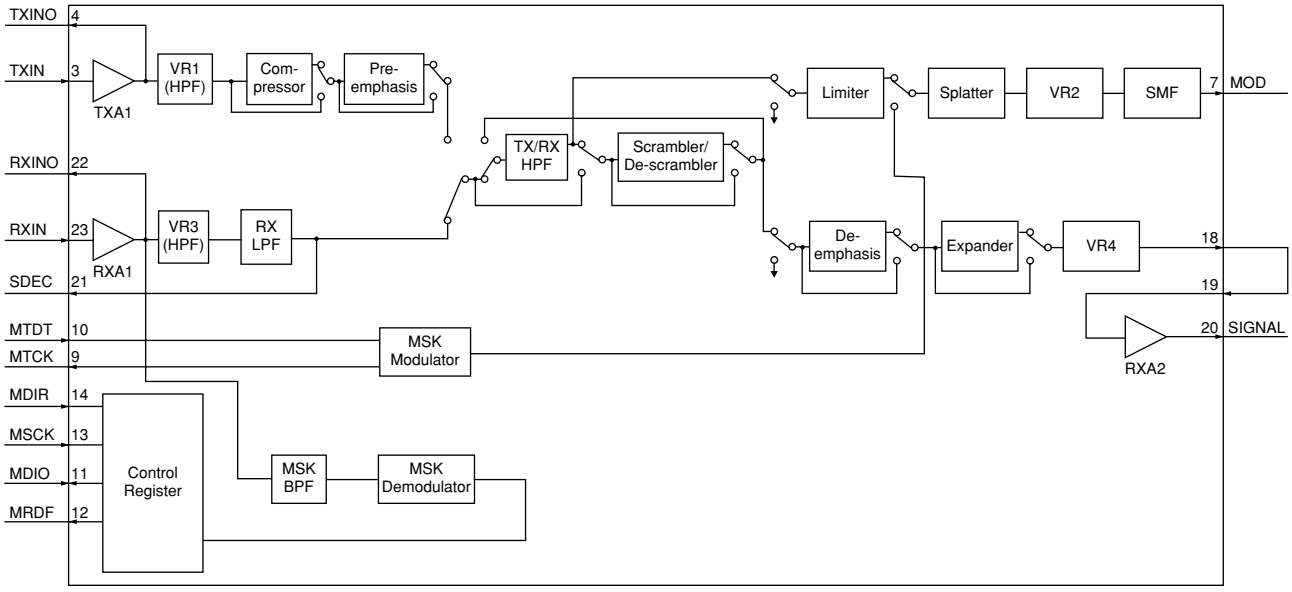
The demodulated AF signals from the IF IC are applied to the amplifier section of base band IC (IC14, pin 23), and then pass through the low-pass and high-pass filter section to suppress unwanted signals. The filtered signals pass through (or bypass) scrambler section, and are then applied to the expander circuit to expand AF signals. The signals are applied to the base band IC's amplifier section (IC14, pins 19, 20), and are then applied to the AF amplifier circuit.

4-6 PORT ALLOCATIONS

4-6-1 D/A CONVERTOR IC (IC12)

Pin number	Port name	Description
10	BAL	Outputs the modulation balance level control signal. The signal is applied to the buffer amplifier (IC24, pin 1).
14	TLVA	Outputs the TX VCO lock voltage control signal.
15	RLVA	Outputs the RX VCO lock voltage control signal.
22	T1	Outputs the bandpass filter tuning signal. The output signal is applied to the bandpass filters (D19, D20, D24, D25).
23	T2	• Outputs the bandpass filter tuning signal. The output signal is applied to the bandpass filters (D14, D15). • Outputs the TX power control signal. The output signal is applied to the APC amplifier (IC16, pin 1).

• BASE BAND IC BLOCK DIAGRAM



4-6-2 CPU (MAIN unit; IC22)

Pin number	Port name	Description
13, 15, 16	CENC0–CENC2	Output the CTCSS/DTCS signals.
29	REF	Outputs the reference oscillator correcting voltage. The voltage is applied to the buffer amplifier (IC24, pin3).
30	PLST	Outputs strobe signals to the PLL IC (IC21, pin 16).
34	PMFM	Outputs the FM/PM modulation switching signal to the FM/PM switch (IC13, pin 5). High: PM is selected.
35	MDIO	I/O port for the serial data signals from/to the base band IC (IC14, pin 11).
36	MSCK	Outputs clock signal to the base band IC (IC14, pin 13).
37	MDIR	Outputs serial data control signal to the base band IC (IC14, pin 14).
38	MTCK	Input port for the transmitting MSK clock signal from the base band IC (IC14, pin 9).
39	MTDT	Outputs MSK data for transmitting to the base band IC (IC14, pin 10).
40	MRDF	Input port for the receiving MSK detection signal from the base band IC (IC14, pin 12).
41	DAST	Outputs strobe signals to the D/A convertor (IC12, pin 6).
43	SENC	Output single tone encoder signal.
44	BEEP	Outputs beep audio signals.
45	SDEC	Input port for single tone decode signal from the base band IC (IC14, pin 21).
46	CDEC	Input port for CTCSS/DTCS signal from the amplifier (IC19, pin 1).
48	BATV	Input port for the detect signal for connecting battery pack's voltage.
49	LVIN	Input port for the PLL lock voltage.
50	RSSI	Input port for the S-meter signal from the FM IF IC (IC9, pin 12).
51	TEMP	Input port for the transceiver's internal temperature detecting signal.
69	CSFT	Outputs shift signal for reference oscillator's frequency.
70	AF	Outputs audio control signal. Low: Outputs audio signals from speaker.
74	PTT	Input port for the PTT switch detection signal. Low: While the PTT switch is pushed.
75	NOIS	Input port for the noise signal from the FM IF IC (IC9, pin 13).
76	SO	Outputs serial data to the PLL IC (IC21, pin 15) and D/A convertor (IC12, pin 8).
78	SCK	Outputs serial clock signal to the PLL IC (IC21 pin 14), D/A convertor (IC12, pin 7), etc.
79	CLI	Input port for the cloning data signal.
80	CLO	Outputs the cloning data signal.
82	ESDA	I/O port for data signals from/to the EEPROM (IC10, pin 5).
85	ESCL	Outputs clock signal to the EEPROM (IC10, pin 6).
86	S5C	Outputs the S5 regulator (Q26–Q28) control signal. Low: While the S5 regulator outputs 5 V voltage.
86	T5C	Outputs the T5 regulator (Q24) control signal. Low: While transmitting.
87	R5C	Outputs the R5 regulator (Q25) control signal. Low: While receiving.
88	TMUT	Outputs the transmitting mute switch control signal to the mute switch (D29). High: While muting.
90	ULCK	Input port for the PLL unlock signal. Low: The PLL circuit is unlocked.

SECTION 5 ADJUSTMENT PROCEDURES

5-1 PREPARATION

When adjusting IC-F43TR, the optional CS-F43TR ADJ ADJUSTMENT SOFTWARE (Rev. 1.0 or later), OPC-478 CLONING CABLE and a JIG CABLE (see illustration at page 5-3) are required.

■ REQUIRED TEST EQUIPMENT

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
DC power supply	Output voltage : 7.5 V DC Current capacity : 5 A or more	Audio generator	Frequency range : 300–3000 Hz Output level : 1–500 mV
FM deviation meter	Frequency range : DC–800 MHz Measuring range : 0 to ±10 kHz	Attenuator	Power attenuation : 40 or 50 dB Capacity : 10 W or more
Frequency counter	Frequency range : 0.1–800 MHz Frequency accuracy : ±1 ppm or better Sensitivity : 100 mV or better	Standard signal generator (SSG)	Frequency range : 100–800 MHz Output level : 0.1 µV–32 mV (–127 to –17 dBm)
Digital multimeter	Input impedance : 10 MΩ/V DC or better	DC voltmeter	Input impedance : 50 kΩ/V DC or better
RF power meter (terminated type)	Measuring range : 1–10 W Frequency range : 100–800 MHz Impedance : 50 Ω SWR : Less than 1.2 : 1	Oscilloscope	Frequency range : DC–20 MHz Measuring range : 0.01–20 V
		AC millivoltmeter	Measuring range : 10 mV–10 V

■ SYSTEM REQUIREMENTS

- Microsoft® Windows® 95 or Windows 98®
- RS-232C serial port (D-sub 9 pin)

■ ADJUSTMENT SOFTWARE INSTALLATION

① Boot up Windows.
 - Quit all applications when Windows is running.
② Insert the cloning software CD into the appropriate CD drive.
③ Select 'Run' from the [Start] menu.
④ Type the setup program name using the full path name, then push [Enter] key.
 (For example; D:\Setup.exe)
⑤ Follow the prompts.
⑥ Program group 'CS-F43TR ADJ' appears in the 'Programs' folder of the [Start] menu.

■ BEFORE STARTING SOFTWARE ADJUSTMENT

Program the adjustment frequencies, listed in page 5-2, into the transceiver using with the CS-F43TR before starting the software adjustment. Otherwise, the transceiver can not start software adjustment.

CAUTION!: BACK UP the originally programmed memory data in the transceiver before programming the adjustment frequencies.
When program the adjustment frequencies into the transceiver, the transceiver's memory data will be overwritten and lose original memory data at the same time.

■ STARTING SOFTWARE ADJUSTMENT

① Connect IC-F43TR and PC with the OPC-478 and JIG CABLE.
② Turn the transceiver power ON.
③ Boot up Windows, and click the program group 'CS-F43TR ADJ' in the 'Programs' folder of the [Start] menu, then CS-F43TR ADJ's window appears.
④ Click 'Connect' on the CS-F43TR's window, then appears IC-F43TR's up-to-date condition.
⑤ Set or modify adjustment data as desired.

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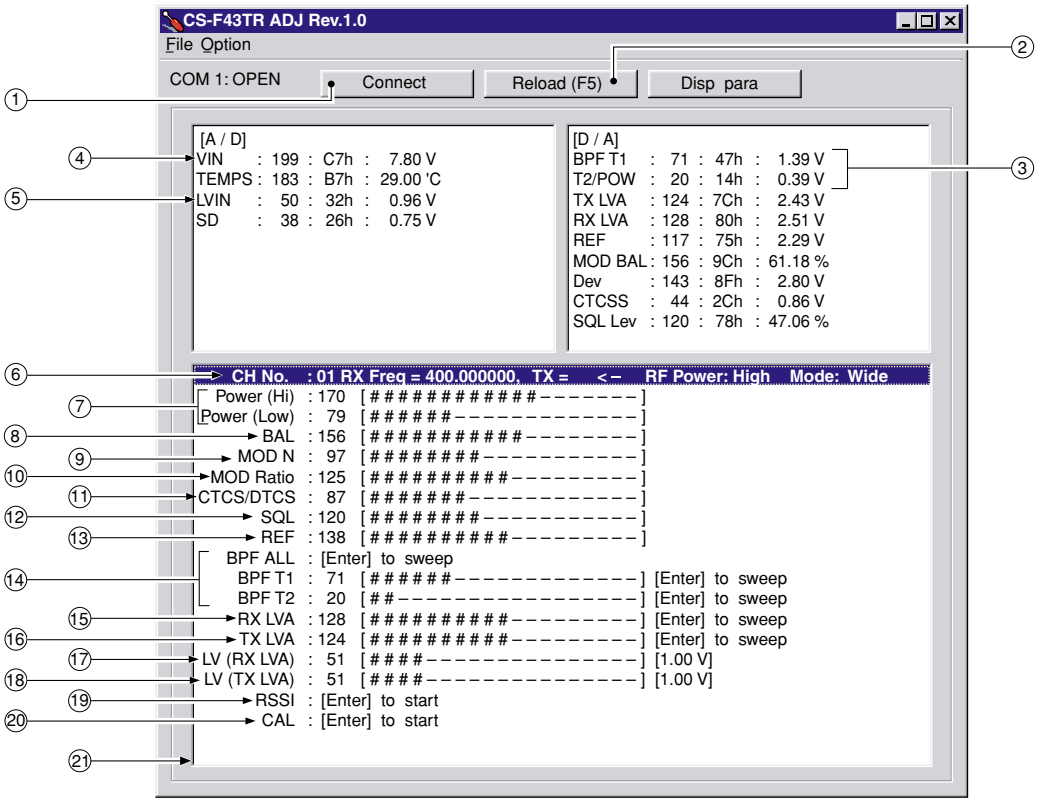
• SCREEN DISPLAY EXAMPLE



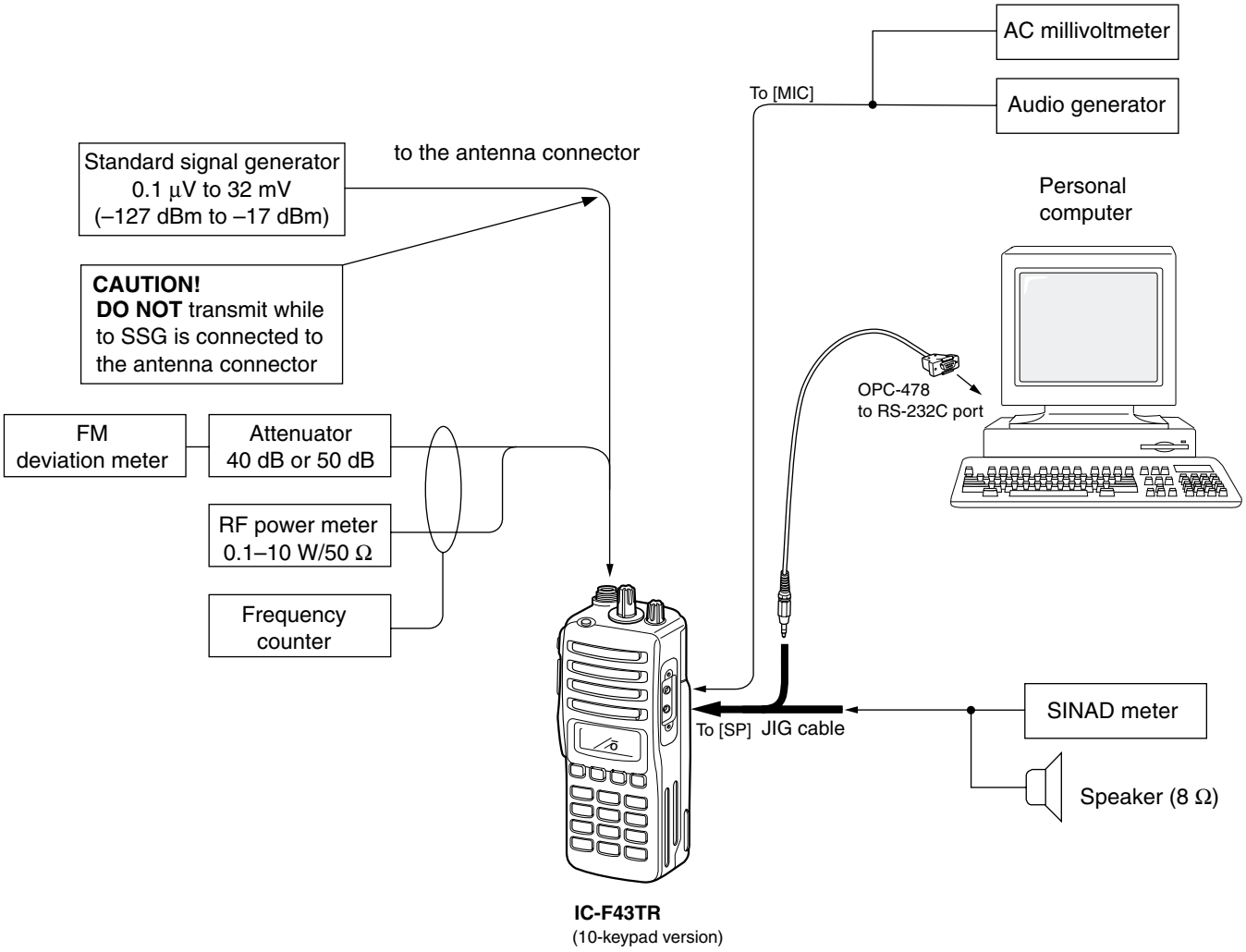
NOTE: The above values for settings are example only.
Each transceiver has its own specific values for each setting.

① : Transceiver's connection state
② : Reload adjustment data
③ : Receive sensitivity measurement
④ : Connected DC voltage measurement
⑤ : PLL lock voltage measurement
⑥ : Operating channel select
⑦ : RF output power
⑧ : FM deviation balance (Narrow)
⑨ : FM deviation (Narrow)
⑩ : FM deviation (Wide)
⑪ : CTCSS/DTCS deviation
⑫ : Squelch level
⑬ : Reference frequency
⑭ : Receive sensitivity (automatically)
⑮ : PLL lock voltage for RX (automatically)
⑯ : PLL lock voltage for TX (automatically)
⑰ : PLL lock voltage for RX (manually)
⑱ : PLL lock voltage for TX (manually)
⑲ : S-meter adjustment
⑳ : CAL adjustment
㉑ : Adjustment items

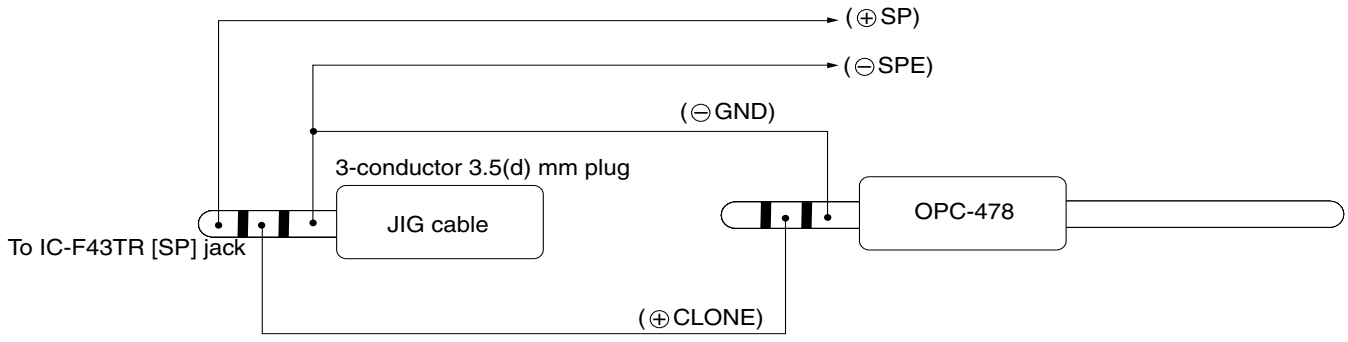
• ADJUSTMENT FREQUENCY LIST

CH	FREQUENCY		ADJUSTMENT ITEM	CH	FREQUENCY		ADJUSTMENT ITEM
	LOW BAND	HIGH BAND			LOW BAND	HIGH BAND	
1	400.000 MHz	450.000 MHz	TX power : Hi Band width : Wide	5	435.000 MHz	485.000 MHz	TX power : Low CTCSS : 151.4 Hz DTCS code : 007 Band width : Wide
2	400.000 MHz	450.000 MHz	TX power : Low Band width : Wide				
3	435.000 MHz	485.000 MHz	TX power : Low Band width : Narrow	6	470.000 MHz	520.000 MHz	TX power : Low Band width : Wide
4	435.000 MHz	485.000 MHz	TX power : Low Band width : Wide				

• CONNECTION

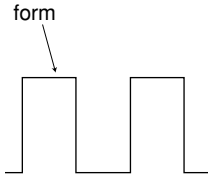


• JIG CABLE



5-2 SOFTWARE ADJUSTMENT (TRANSMITTING)

Select an operation using [↑] / [↓] keys, then set specified value using [←] / [→] keys on the connected computer keyboard.

ADJUSTMENT		ADJUSTMENT CONDITION	MEASUREMENT		VALUE
			UNIT	LOCATION	
PLL LOCK VOLTAGE [LV (RX LVA)] [LV (TX LVA)]	1	• Operating CH. : CH2 • Receiving	MAIN	Check the "LV" item on the CS-F43TR ADJ's display.	1.0 V
	2	• Operating CH. : CH2 • Transmitting			1.0 V
	3	• Operating CH. : CH6 • Receiving	MAIN	Check the "LV" item on the CS-F43TR ADJ's display.	3.3–4.5 V (Verify)
	4	• Operating CH. : CH6 • Transmitting			3.3–4.5 V (Verify)
REFERENCE FREQUENCY [REF]	1	• Operating CH. : CH6 • Connect an RF power meter or 50 Ω dummy load to the antenna connector. • Transmitting	Top panel	Loosely couple a frequency counter to the antenna connector.	470.0000 MHz [L] 520.0000 MHz [H]
OUTPUT POWER [Power (Hi)]	1	• Operating CH. : CH1 • Transmitting	Top panel	Connect an RF power meter to the antenna connector.	4.0 W
[Power (Low)]	2	• Operating CH. : CH1 • Transmitting			1.0 W
MODULATION BALANCE [BAL N]	1	• Operating freq. : CH3 • No audio applied to the [MIC] input. • Set an FM deviation meter as: HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P–P)/2 • IF bandwidth : Narrow • Push the [P0] while transmitting		Connect an FM deviation meter with an oscilloscope to the antenna connector through an attenuator.	Set to square wave form 
FM DEVIATION [MOD N] (Narrow)	1	• Operating freq. : CH3 • Set the FM deviation meter as: HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P–P)/2 • Connect the audio generator to the [MIC] connector and set as : 1.0 kHz/150 mVrms • Transmitting	Top panel	Connect an FM deviation meter to the antenna connector through the attenuator.	±2.10 kHz
[MOD Ratio] (Middle)	2	• Operating freq. : CH4 • Transmitting			±4.10 kHz
CTCSS/DTCS DEVIATION [CTCS/DTCS]		• Operating freq. : CH5 • No audio applied to the [MIC] input. • Transmitting	Top panel	Connect an FM deviation meter to the antenna connector through the attenuator.	±0.70 kHz

SOFTWARE ADJUSTMENT (RECEIVING)

- Select an operation using [↑] / [↓] keys, then set specified value using [←] / [→] keys on the connected computer keyboard.
- Need to adjust "S-METER ADJUSTMENT" after "RX SENSITIVITY ADJUSTMENT" is adjusted. Otherwise, "S-METER ADJUSTMENT" will not be adjusted properly.

ADJUSTMENT		ADJUSTMENT CONDITION	MEASUREMENT		VALUE
			UNIT	LOCATION	
RX SENSITIVITY [BPF T1], [BPF T2]	1	• Operating CH. : CH2 • Connect a standard signal generator to the antenna connector and set as: Frequency : 400.000 MHz [L] 450.000 MHz [H] Level : 10 µV* (–87 dBm) Modulation : 1 kHz Deviation : ±3.5 kHz • Receiving	MAIN	Connect a SINAD meter with an 8 Ω load to the [SP] JACK.	Minimum distortion level
		CONVENIENT: The BPF T1, BPF T2 can be adjusted automatically. ①-1: Set the cursor to "BPF ALL" on the adjustment program and then push [ENTER] key. ①-2: The connected PC tunes BPF T1, BPF T2 to peak levels. or ②-1: Set the cursor to one of BPF T1, T2 as desired. ②-2: Push [ENTER] key to start tuning. ②-3: Repeat ②-1 and ②-2 to perform additional BPF tuning.			
S-METER [S-METER]	1	• Operating freq. : CH2 • Connect an SSG to the antenna connector and set as: Frequency : 400.000 MHz [L] 450.000 MHz [H] Level : 4.5 µV* (–94 dBm) Modulation : 1 kHz Deviation : ±3.5 kHz • Receiving	Push the [ENTER] key on the connected computer's keyboard to set "S6 level".		
	2	• Set an SSG as : Level : 0.25 µV* (–119 dBm) Modulation : 1 kHz Deviation : ±3.5 kHz • Receiving	Push the [ENTER] key on the connected computer keyboard to set "S1 level".		
SQUELCH LEVEL [SQL]	1	• Operating freq. : CH6 • Connect an SSG to the antenna connector and set as: Frequency : 470.000 MHz [L] 520.000 MHz [H] Level : 0.2 µV* (–121 dBm) Modulation : 1 kHz Deviation : ±3.5 kHz • Receiving	Front panel	Speaker	Set "SQL level" to close squelch. Then set "SQL level" at the point where the audio signals just appears.

*The output level of the standard signal generator (SSG) is indicated as the SSG's open circuit.

SECTION 6 PARTS LIST

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
IC6	1110006350	S.IC	LM2902PWR	B
IC8	1110005770	S.IC	S-80942CNMC-G9C-T2	B
IC9	1110003200	S.IC	TA31136FN (EL)	T
IC10	1130011580	S.IC	24LC64T-I/SN	B
IC12	1190001350	S.IC	M62364FP 600D	B
IC13	1130006220	S.IC	TC4W53FU (TE12L)	B
IC14	1110006220	S.IC	AK2346-E2	B
IC15	1110001810	S.IC	TA7368F (ER)	T
IC16	1110002750	S.IC	TA75S01F (TE85R)	T
IC17	1110005350	S.IC	NJM2870F05-TE1	B
IC19	1110006380	S.IC	LM2904PWR	B
IC20	1130009090	S.IC	LC75834W-TLM	T
IC21	1130010100	S.IC	LMX2352	T
IC22	1140011510	S.IC	HD64F2238BTF13	B
IC23	1110006380	S.IC	LM2904PWR	B
IC24	1110002750	S.IC	TA75S01F (TE85R)	B
IC25	1130007020	S.IC	TC7S66FU (TE85R)	B
Q2	1590003320	S.FET	TPC6103 (TE85L)	T
Q3	1590003290	S.TRANSISTOR	UNR9213J-(TX)	T
Q4	1560000840	S.FET	2SK1829 (TE85R)	T
Q5	1580000730	S.FET	3SK293 (TE85L)	B
Q6	1580000760	S.FET	3SK299-T1 U73	B
Q7	1530002600	S.TRANSISTOR	2SC4215-O (TE85R)	B
Q14	1530003260	S.TRANSISTOR	2SC5006-T1	B
Q15	1530003260	S.TRANSISTOR	2SC5006-T1	B
Q16	1530002920	S.TRANSISTOR	2SC4226-T1 R25	B
Q17	1530002920	S.TRANSISTOR	2SC4226-T1 R25	B
Q18	1590001400	S.TRANSISTOR	XP1214 (TX)	T
Q19	1590003290	S.TRANSISTOR	UNR9213J-(TX)	T
Q20	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	T
Q21	1560000540	S.FET	2SK880-Y (TE85R)	T
Q22	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	T
Q24	1510000920	S.TRANSISTOR	2SA1577 T106 Q	B
Q25	1510000920	S.TRANSISTOR	2SA1577 T106 Q	B
Q26	1520000450	S.TRANSISTOR	2SB1132 T100 Q	B
Q27	1590001190	S.TRANSISTOR	XP6501-(TX) .AB	B
Q28	1590003230	S.TRANSISTOR	UNR9113J-(TX)	B
Q29	1530003260	S.TRANSISTOR	2SC5006-T1	B
Q38	1590003290	S.TRANSISTOR	UNR9213J-(TX)	B
Q40	1590003290	S.TRANSISTOR	UNR9213J-(TX)	B
Q41	1590001190	S.TRANSISTOR	XP6501-(TX) .AB	T
Q42	1520000450	S.TRANSISTOR	2SB1132 T100 Q	T
Q43	1590003400	S.TRANSISTOR	UNR9112J	T
Q44	1590003270	S.TRANSISTOR	UNR9210J-(TX)	B
Q45	1590003230	S.TRANSISTOR	UNR9113J-(TX)	T
D5	1160000060	S.DIODE	DAN202U T106	T
D6	1790001260	S.DIODE	MA2S077-(TX)	B
D8	1790001250	S.DIODE	MA2S111-(TX)	T
D9	1750000710	S.VARICAP	HVC350BTRF	B
D10	1750000710	S.VARICAP	HVC350BTRF	B
D11	1750000710	S.VARICAP	HVC350BTRF	B
D12	1720000570	S.VARICAP	MA368 (TX)	B
D13	1750000710	S.VARICAP	HVC350BTRF	B
D14	1750000710	S.VARICAP	HVC350BTRF	B
D15	1750000710	S.VARICAP	HVC350BTRF	B
D16	1750000580	S.DIODE	1SV307 (TPH3)	B
D17	1790001260	S.DIODE	MA2S077-(TX)	B
D18	1790001250	S.DIODE	MA2S111-(TX)	T
D19	1750000710	S.VARICAP	HVC350BTRF	B
D20	1750000710	S.VARICAP	HVC350BTRF	B
D21	1160000060	S.DIODE	DAN202U T106	B
D24	1750000710	S.VARICAP	HVC350BTRF	B
D25	1750000710	S.VARICAP	HVC350BTRF	B
D28	1790001670	S.DIODE	RB706F-40T106	B
D29	1790001250	S.DIODE	MA2S111-(TX)	T
FI1	2010002450	S.XTAL	FL-313 (46.35 MHz)	T
FI2	2020001530	CERAMIC	CFWLB450KFFA-B0	B
X1	6070000190	S.DISCRIMINATOR	CDBCB450KCAY24-R0	B
X2	6050011930	S.XTAL	CR-781 (15.3 MHz)	B
X5	6050011730	S.XTAL	CR-765 (3.6864 MHz)	B
X6	6050011830	S.XTAL	CR-774 (12.288 MHz)	B

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
L7	6200007700	S.COIL	LQW2BHN22NJ01L	B
L8	6200007700	S.COIL	LQW2BHN22NJ01L	B
L9	6200007680	S.COIL	LQW2BHN12NJ01L	B
L11	6200007680	S.COIL	LQW2BHN12NJ01L	B
L12	6200007920	S.COIL	ELJRF 15NJF2 (15)	B
L13	6200003350	S.COIL	ELJNC R27K-F	B
L21	6200007920	S.COIL	ELJRF 15NJF2 (15)	B
L22	6200007900	S.COIL	ELJRF 22NJF2 (22)	B
L25	6200008490	S.COIL	0.30-0.9-3TR 7.5N	B
L27	6200004950	S.COIL	NL 252018T-1R8J	T
L28	6200002710	S.COIL	ELJFC 1R8K-F	T
L31	6200007720	S.COIL	LQW2BHN33NJ01L	B
L32	6200007910	S.COIL	ELJRF 18NJF2 (18)	B
L33	6200004480	S.COIL	MLF1608D R82K-T	T
L35	6200003540	S.COIL	MLF1608D R22K-T	T
L37	6200009710	S.COIL	0.30-0.9-4TL 10.5N	B
L41	6200007880	S.COIL	ELJRF 33NJF2 (33)	B
L42	6200004660	S.COIL	MLF1608A 1R8K-T	T
L43	6200004660	S.COIL	MLF1608A 1R8K-T	T
L46	6200007590	S.COIL	LL1608-FH27NJ	B
L47	6200002850	S.COIL	NL 252018T-R82J	T
L48	6200002850	S.COIL	NL 252018T-R82J	T
R1	7030004970	S.RESISTOR	ERJ2GEJ 470 X (47 Ω)	T
R2	7030009140	S.RESISTOR	ERJ2GEJ 272 X (2.7 kΩ)	T
R4	7030008370	S.RESISTOR	ERJ2GEJ 561 X (560 Ω)	T
R5	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)	T
R6	7030008300	S.RESISTOR	ERJ2GEJ 184 X (180 kΩ)	T
R7	7030005310	S.RESISTOR	ERJ2GEJ 124 X (120 kΩ)	T
R8	7030005170	S.RESISTOR	ERJ2GEJ 474 X (470 kΩ)	T
R9	7030008280	S.RESISTOR	ERJ2GEJ 271 X (270 Ω)	T
R12	7030005530	S.RESISTOR	ERJ2GEJ 100 X (10 Ω)	B
R13	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R15	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	T
R16	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)	B
R17	7030004970	S.RESISTOR	ERJ2GEJ 470 X (47 Ω)	T
R18	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)	T
R19	7030005080	S.RESISTOR	ERJ2GEJ 823 X (82 kΩ)	T
R21	7030005110	S.RESISTOR	ERJ2GEJ 224 X (220 kΩ)	T
R22	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	T
R23	7030005110	S.RESISTOR	ERJ2GEJ 224 X (220 kΩ)	T
R24	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R25	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)	B
R29	7030007270	S.RESISTOR	ERJ2GEJ 151 X (150 Ω)	B
R31	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)	T
R32	7030010040	S.RESISTOR	ERJ2GE-JPW	T
R33	7030007270	S.RESISTOR	ERJ2GEJ 151 X (150 Ω)	B
R34	7030005110	S.RESISTOR	ERJ2GEJ 224 X (220 kΩ)	B
R35	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)	B
R36	7030005030	S.RESISTOR	ERJ2GEJ 152 X (1.5 kΩ)	B
R38	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	T
R39	7030004970	S.RESISTOR	ERJ2GEJ 470 X (47 Ω)	B
R40	7030007270	S.RESISTOR	ERJ2GEJ 151 X (150 Ω)	T
R43	7030004970	S.RESISTOR	ERJ2GEJ 470 X (47 Ω)	T
R44	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	T
R45	7030008290	S.RESISTOR	ERJ2GEJ 183 X (18 kΩ)	T
R46	7030005000	S.RESISTOR	ERJ2GEJ 471 X (470 Ω)	T
R48	7030005000	S.RESISTOR	ERJ2GEJ 471 X (470 Ω)	B
R50	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)	B
R68	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R69	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)	B
R70	7030005530	S.RESISTOR	ERJ2GEJ 100 X (10 Ω)	B
R71	7030005600	S.RESISTOR	ERJ2GEJ 273 X (27 kΩ)	B
R72	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	B
R73	7030008010	S.RESISTOR	ERJ2GEJ 123 X (12 kΩ)	B
R74	7030006610	S.RESISTOR	ERJ2GEJ 394 X (390 kΩ)	B
R75	7030005100	S.RESISTOR	ERJ2GEJ 154 X (150 kΩ)	B
R76	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)	B
R77	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)	B
R78	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R79	7030006020	S.RESISTOR	RR0510P-682-D (6.8 kΩ)	B
R80	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	T
R81	7030008290	S.RESISTOR	ERJ2GEJ 183 X (18 kΩ)	B
R82	7030010040	S.RESISTOR	ERJ2GE-JPW	B
R83	7030006020	S.RESISTOR	RR0510P-682-D (6.8 kΩ)	B
R84	7030006020	S.RESISTOR	RR0510P-682-D (6.8 kΩ)	B
R85	7030006020	S.RESISTOR	RR0510P-682-D (6.8 kΩ)	B
R86	7030005110	S.RESISTOR	ERJ2GEJ 224 X (220 kΩ)	T
R87	7030009280	S.RESISTOR	ERJ2GE 391 X	T
R88	7030005010	S.RESISTOR	ERJ2GEJ 681 X (680 Ω)	T

[H]: High-band. [L]: Low-band.

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
R89	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	T
R90	7030005170	S.RESISTOR	ERJ2GEJ 474 X (470 kΩ)	T
R91	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	T
R92	7030005310	S.RESISTOR	ERJ2GEJ 124 X (120 kΩ)	T
R93	7030005060	S.RESISTOR	ERJ2GEJ 333 X (33 kΩ)	B
R95	7030005030	S.RESISTOR	ERJ2GEJ 152 X (1.5 kΩ)	T
R96	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	B
R97	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R98	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)	T
R100	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	T
R101	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	T
R103	7030005110	S.RESISTOR	ERJ2GEJ 224 X (220 kΩ)	B
R104	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R106	7030005160	S.RESISTOR	ERJ2GEJ 105 X (1 MΩ)	B
R107	7030005060	S.RESISTOR	ERJ2GEJ 333 X (33 kΩ)	B
R108	7030005000	S.RESISTOR	ERJ2GEJ 471 X (470 Ω)	B
R110	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	T
R111	7030005170	S.RESISTOR	ERJ2GEJ 474 X (470 kΩ)	T
R114	7030005080	S.RESISTOR	ERJ2GEJ 823 X (82 kΩ)	B
R115	7030007570	S.RESISTOR	ERJ2GEJ 122X (1.2 kΩ)	T
R116	7030007060	S.RESISTOR	ERJ2GEJ 684X (680 kΩ)	T
R117	7030005160	S.RESISTOR	ERJ2GEJ 105 X (1 MΩ)	B
R118	7030005060	S.RESISTOR	ERJ2GEJ 333 X (33 kΩ)	B
R119	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	B
R120	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	B
R121	7030005110	S.RESISTOR	ERJ2GEJ 224 X (220 kΩ)	B
R122	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)	B
R123	7030005060	S.RESISTOR	ERJ2GEJ 333 X (33 kΩ)	B
R124	7030005170	S.RESISTOR	ERJ2GEJ 474 X (470 kΩ)	T
R127	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	T
R130	7030007300	S.RESISTOR	ERJ2GEJ 332 X (3.3 kΩ)	T
R131	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R147	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R148	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)	B
R151	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	B
R152	7030005230	S.RESISTOR	ERJ2GEJ 334 X (330 kΩ)	B
R154	7030005310	S.RESISTOR	ERJ2GEJ 124 X (120 kΩ)	B
R156	7030010040	S.RESISTOR	ERJ2GE-JPW	B
R157	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R161	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R162	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)	B
R163	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R164	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)	B
R165	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R166	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)	B
R172	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	T
R173	7030008400	S.RESISTOR	ERJ2GEJ 182 X (1.8 kΩ)	T
R174	7030005170	S.RESISTOR	ERJ2GEJ 474 X (470 kΩ)	T
R175	7030005110	S.RESISTOR	ERJ2GEJ 224 X (220 kΩ)	T
R181	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)	B
R182	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)	B
R183	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)	B
R184	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R185	7030005170	S.RESISTOR	ERJ2GEJ 474 X (470 kΩ)	B
R186	7030005000	S.RESISTOR	ERJ2GEJ 471 X (470 Ω)	B
R203	7030005110	S.RESISTOR	ERJ2GEJ 224 X (220 kΩ)	B
R204	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R205	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R209	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	B
R210	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	B
R211	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	B
R213	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)	B
R214	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	B
R215	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)	B
R216	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)	B
R217	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)	B
R218	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)	B
R219	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)	B
R220	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R221	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)	B
R222	7030008300	S.RESISTOR	ERJ2GEJ 184 X (180 kΩ)	B
R223	7030005720	S.RESISTOR	ERJ2GEJ 563 X (56 kΩ)	B
R224	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)	B
R225	7030007260	S.RESISTOR	ERJ2GEJ 330 X (33 Ω)	T
R226	7030005530	S.RESISTOR	ERJ2GEJ 100 X (10 Ω)	T
R227	7030009140	S.RESISTOR	ERJ2GEJ 272 X (2.7 kΩ)	T
R228	7030007300	S.RESISTOR	ERJ2GEJ 332 X (3.3 kΩ)	T
R229	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	T
R231	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)	B
R233	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)	T
R234	7030005530	S.RESISTOR	ERJ2GEJ 100 X (10 Ω)	T
R235	7030005000	S.RESISTOR	ERJ2GEJ 471 X (470 Ω)	T
R236	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	T
R237	7030005530	S.RESISTOR	ERJ2GEJ 100 X (10 Ω)	B
R238	7030005000	S.RESISTOR	ERJ2GEJ 471 X (470 Ω)	B
R239	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)	B
R240	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)	B
R241	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B

[H]: High-band. [L]: Low-band.

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
R242	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R243	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)	B
R244	7030007350	S.RESISTOR	ERJ2GEJ 393 X (39 kΩ)	B
R245	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)	B
R246	7030005290	S.RESISTOR	ERJ2GEJ 682 X (6.8 kΩ)	T
R247	7030005000	S.RESISTOR	ERJ2GEJ 471 X (470 Ω)	B
R256	7510001730	S.THEMISTOR	ERTJOEP 473J	B
R257	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R258	7030005530	S.RESISTOR	ERJ2GEJ 100 X (10 Ω)	B
R259	7030005160	S.RESISTOR	ERJ2GEJ 105 X (1 MΩ)	B
R260	7030008010	S.RESISTOR	ERJ2GEJ 123 X (12 kΩ)	B
R261	7030008010	S.RESISTOR	ERJ2GEJ 123 X (12 kΩ)	B
R262	7030008010	S.RESISTOR	ERJ2GEJ 123 X (12 kΩ)	B
R263	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R264	7030006010	S.RESISTOR	RR0510P-472-D (4.7 kΩ)	B
R265	7030006010	S.RESISTOR	RR0510P-472-D (4.7 kΩ)	B
R266	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R267	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R269	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R270	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)	B
R272	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)	T
R273	7030007300	S.RESISTOR	ERJ2GEJ 332 X (3.3 kΩ)	B
R275	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R282	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R283	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R288	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)	B
R289	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R291	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R292	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R293	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R295	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	T
R300	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	T
R301	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)	B
R302	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R303	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	T
R304	7030010040	S.RESISTOR	ERJ2GE-JPW	B
R305	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	T
R306	7030005530	S.RESISTOR	ERJ2GEJ 100 X (10 Ω)	B
R307	7030005580	S.RESISTOR	ERJ2GEJ 560 X (56 Ω)	B
R308	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)	T
R309	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R315	7210003060	VARIABLE	TP76N00N-15F-10KA-2251	B
R318	7030005700	S.RESISTOR	ERJ2GEJ 274 X (270 kΩ)	T
R319	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	T
R320	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R321	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R323	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R325	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R327	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R329	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R331	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R333	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R335	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	B
R336	7030009710	S.RESISTOR	ERJ2GEJ 203 X (20 kΩ)	B
R337	7030009710	S.RESISTOR	ERJ2GEJ 203 X (20 kΩ)	B
R338	7030009710	S.RESISTOR	ERJ2GEJ 203 X (20 kΩ)	B
R339	7030009710	S.RESISTOR	ERJ2GEJ 203 X (20 kΩ)	B
R340	7030009710	S.RESISTOR	ERJ2GEJ 203 X (20 kΩ)	B
R341	7030009710	S.RESISTOR	ERJ2GEJ 203 X (20 kΩ)	B
R342	7030009710	S.RESISTOR	ERJ2GEJ 203 X (20 kΩ)	B
R343	7030009710	S.RESISTOR	ERJ2GEJ 203 X (20 kΩ)	B
R344	7030009710	S.RESISTOR	ERJ2GEJ 203 X (20 kΩ)	B
R345	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	T
R346	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	T
R347	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	T
R348	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	T
R349	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R350	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R351	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R352	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R353	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R354	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R355	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R356	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R357	7030006610	S.RESISTOR	ERJ2GEJ 394 X (390 kΩ)	B
R358	7030006610	S.RESISTOR	ERJ2GEJ 394 X (390 kΩ)	B
R359	7030010040	S.RESISTOR	ERJ2GE-JPW	T
R360	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)	T
R361	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R362	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
R507	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	T
R508	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)	B
R509	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)	B
R510	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	B
R511	7030005210	S.RESISTOR	ERJ2GEJ 822 X (8.2 kΩ)	B
R512	7030005210	S.RESISTOR	ERJ2GEJ 822 X (8.2 kΩ)	B
R513	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)	B
R514	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
R515	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	T
R516	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)	B
C17	4550007120	S.TANTALUM	F92 1D 224MPA	T
C18	4030017510	S.CERAMIC	ECJ0EC1H680J	B
C19	4030017350	S.CERAMIC	ECJ0EC1H020B	B
C21	4030017590	S.CERAMIC	ECJ0EC1H070C	B
C22	4030017350	S.CERAMIC	ECJ0EC1H020B	B
C24	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C25	4030017580	S.CERAMIC	ECJ0EC1H060C	B
C26	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C27	4030017660	S.CERAMIC	ECJ0EC1H330J	B
C28	4030017590	S.CERAMIC	ECJ0EC1H070C	B
C29	4030017620	S.CERAMIC	ECJ0EC1H100C	B
C30	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C31	4030017910	S.CERAMIC	ECJ0EB1H152K	B
C32	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C33	4030017420	S.CERAMIC	ECJ0EC1H470J	B
C34	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C35	4030017760	S.CERAMIC	ECJ0EB1H222K	B
C36	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C37	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C39	4030017620	S.CERAMIC	ECJ0EC1H100C	B
C40	4030017520	S.CERAMIC	ECJ0EC1H0R3B	B
C41	4030017640	S.CERAMIC	ECJ0EC1H150J	B
C42	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C43	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C44	4030017560	S.CERAMIC	ECJ0EC1H2R5B	B
C45	4030017630	S.CERAMIC	ECJ0EC1H120J	B
C46	4030017420	S.CERAMIC	ECJ0EC1H470J	B
C47	4030016970	S.CERAMIC	ECJ0EB1C223K	B
C48	4030017400	S.CERAMIC	ECJ0EC1H220J	B
C49	4030017380	S.CERAMIC	ECJ0EC1H050B	B
C50	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C51	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C52	4030017420	S.CERAMIC	ECJ0EC1H470J	B
C53	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C54	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C56	4030017390	S.CERAMIC	ECJ0EC1H180J	T
C57	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C58	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C59	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C60	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C61	4030017430	S.CERAMIC	ECJ0EC1H101J	B
C62	4030017680	S.CERAMIC	ECJ0EC1H820J	T
C63	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C64	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C65	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C66	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C67	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C69	4030017750	S.CERAMIC	ECJ0EB1E122K	T
C70	4030017740	S.CERAMIC	ECJ0EB1E821K	T
C71	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C72	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C73	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C74	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C75	4550007040	S.TANTALUM	ECST0JZ106R	B
C76	4030016790	S.CERAMIC	ECJ0EB1C103K	T
C77	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C78	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C79	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	T
C80	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C90	4030017400	S.CERAMIC	ECJ0EC1H220J	B
C95	4030017710	S.CERAMIC	ECJ0EC1H181J	B
C98	4030017400	S.CERAMIC	ECJ0EC1H220J	B
C100	4030017620	S.CERAMIC	ECJ0EC1H100C	B
C102	4030017380	S.CERAMIC	ECJ0EC1H050B	B
C103	4030017350	S.CERAMIC	ECJ0EC1H020B	B
C104	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C105	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C106	4030017420	S.CERAMIC	ECJ0EC1H470J	B
C107	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C108	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C109	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C110	4030017730	S.CERAMIC	ECJ0EB1E471K	B
C111	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C112	4030017750	S.CERAMIC	ECJ0EB1E122K	B
C113	4030017540	S.CERAMIC	ECJ0EC1HR75B	B
C114	4030017380	S.CERAMIC	ECJ0EC1H050B	B
C115	4030017630	S.CERAMIC	ECJ0EC1H120J	B
C116	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C117	4030017730	S.CERAMIC	ECJ0EB1E471K	B
C118	4030017520	S.CERAMIC	ECJ0EC1H0R3B	B
C119	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C120	4030017730	S.CERAMIC	ECJ0EB1E471K	B
C121	4030017620	S.CERAMIC	ECJ0EC1H100C [L]	B
	4030017630	S.CERAMIC	ECJ0EC1H120J [H]	B

[H]: High-band. [L]: Low-band.

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
C122	4030017580	S.CERAMIC	ECJ0EC1H060C [L]	B
	4030017600	S.CERAMIC	ECJ0EC1H080C [H]	B
C123	4030017390	S.CERAMIC	ECJ0EC1H180J [L]	B
	4030017640	S.CERAMIC	ECJ0EC1H150J [H]	B
C124	4030017540	S.CERAMIC	ECJ0EC1HR75B	B
C125	4030017760	S.CERAMIC	ECJ0EB1H222K	B
C126	4030017630	S.CERAMIC	ECJ0EC1H120J	B
C128	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C129	4030017530	S.CERAMIC	ECJ0EC1H0R5B	B
C130	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C131	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C132	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C133	4030017620	S.CERAMIC	ECJ0EC1H100C	B
C134	4030017630	S.CERAMIC	ECJ0EC1H120J	B
C135	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C136	4030017430	S.CERAMIC	ECJ0EC1H101J	B
C137	4030016790	S.CERAMIC	ECJ0EB1C103K	T
C138	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C139	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C140	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C141	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C142	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C143	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C144	4030016950	S.CERAMIC	ECJ0EB1A473K	T
C144	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C145	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C147	4030017420	S.CERAMIC	ECJ0EC1H470J	B
C148	4550006250	S.TANTALUM	TEESVA 1A 106M8L	T
C149	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C150	4030017490	S.CERAMIC	C1608 JB 1A 105K-T	T
C151	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C152	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C153	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C154	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C155	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C156	4030017430	S.CERAMIC	ECJ0EC1H101J	B
C157	4030017620	S.CERAMIC	ECJ0EC1H100C	B
C158	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C159	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C160	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C161	4030017620	S.CERAMIC	ECJ0EC1H100C	T
C162	4030017500	S.CERAMIC	ECJ0EC1H560J	T
C163	4030017570	S.CERAMIC	ECJ0EC1H040B	T
C164	4030017590	S.CERAMIC	ECJ0EC1H070C	T
C165	4030016790	S.CERAMIC	ECJ0EB1C103K	T
C166	4030017360	S.CERAMIC	ECJ0EC1H030B	T
C167	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C168	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C169	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C170	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C171	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C172	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C174	4030017710	S.CERAMIC	ECJ0EC1H181J	B
C175	4030017420	S.CERAMIC	ECJ0EC1H470J	B
C176	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C177	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C180	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C182	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C183	4030017640	S.CERAMIC	ECJ0EC1H150J	B
C184	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C185	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C186	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C188	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C191	4030018120	S.CERAMIC	ECJ0EC1H110J	B
C192	4030017610	S.CERAMIC	ECJ0EC1H090C	B
C205	4030017380	S.CERAMIC	ECJ0EC1H050B	B
C206	4030017590	S.CERAMIC	ECJ0EC1H070C	B
C208	4030017590	S.CERAMIC	ECJ0EC1H070C	B
C209	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C211	4030017260	S.CERAMIC	C2012 JB 0J 475KT	B
C221	4030016940	S.CERAMIC	ECJ0EB1A393K	B
C222	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C223	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C224	4550005980	S.TANTALUM	TEESVA 1A 475M8L	B
C225	4030017730	S.CERAMIC	ECJ0EB1E471K	B
C226	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C231	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C232	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C233	4550007090	S.TANTALUM	TEESVA 1A 226M8R	B
C234	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C235	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C236	4030018560	S.CERAMIC	C2012 JB 1A 475K-T	B
C237	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C238	4550007070	S.TANTALUM	TEESVP 1A 475M8R	B
C239	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C240	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C241	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C242	4030017460	S.CERAMIC	ECJ0EB1E102K	B

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
C302	4030016790	S.CERAMIC	ECJ0EB1C103K	T
C303	4030017490	S.CERAMIC	C1608 JB 1A 105K-T	T
C308	4550007090	S.TANTALUM	TEESVA 1A 226M8R	B
C309	4030017490	S.CERAMIC	C1608 JB 1A 105K-T	B
C310	4030017490	S.CERAMIC	C1608 JB 1A 105K-T	B
C312	4030016780	S.CERAMIC	ECJ0EB1C153K	B
C314	4030017740	S.CERAMIC	ECJ0EB1E821K	B
C315	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C316	4030017420	S.CERAMIC	ECJ0EC1H470J	B
C317	4030017770	S.CERAMIC	ECJ0EB1E332K	B
C318	4030017690	S.CERAMIC	ECJ0EC1H121J	B
C319	4030017760	S.CERAMIC	ECJ0EB1H222K	B
C320	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C321	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C322	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C323	4030016950	S.CERAMIC	ECJ0EB1A473K	T
C324	4550007110	S.TANTALUM	SY6-1A107M-RC	B
C325	4550006250	S.TANTALUM	TEESVA 1A 106M8L	T
C326	4550007080	S.TANTALUM	TEESVA 1C 106M8R	T
C327	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C328	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C329	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C330	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C331	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C332	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C333	4550007040	S.TANTALUM	ECST0JZ106R	T
C334	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C335	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C336	4030017730	S.CERAMIC	ECJ0EB1E471K	B
C337	4030017490	S.CERAMIC	C1608 JB 1A 105K-T	T
C338	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C339	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C340	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C345	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C346	4030017600	S.CERAMIC	ECJ0EC1H080C	B
C347	4030017640	S.CERAMIC	ECJ0EC1H150J	B
C348	4030017400	S.CERAMIC	ECJ0EC1H220J	B
C349	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C350	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C351	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C352	4030017030	S.CERAMIC	ECJ0EB1A273K	B
C353	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C354	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C355	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C356	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C357	4030018560	S.CERAMIC	C2012 JB 1A 475K-T	B
C359	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C360	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C368	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C369	4030017660	S.CERAMIC	ECJ0EC1H330J	B
C371	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C375	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C376	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C377	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C378	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C379	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C380	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C384	4030018100	S.CERAMIC	ECJ0EB1H681K	T
C386	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C387	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C388	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C390	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C393	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C394	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C395	4030017420	S.CERAMIC	ECJ0EC1H470J	B
C396	4030017360	S.CERAMIC	ECJ0EC1H030B	B
C397	4030017580	S.CERAMIC	ECJ0EC1H060C	B
C398	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C399	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C400	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C401	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C402	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C403	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C404	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C405	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C406	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C407	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C408	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C409	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C411	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C412	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C413	4030017780	S.CERAMIC	ECJ0EB1E472K	T
C414	4030017330	S.CERAMIC	ECJ0EF1C104Z	B
C415	4030017520	S.CERAMIC	ECJ0EC1H0R3B	B
J2	6450001690	CONNECTOR	HSJ1456-01-220	B
J3	6450001680	CONNECTOR	HSJ1122-010010	B

[H]: High-band. [L]: Low-band.

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
J4	6510021900	S.CONNECTOR	BM02B-ASRS-TF	T
J5	6510018430	S.CONNECTOR	AXN330C038P	B
J6	6510024390	S.CONNECTOR	IMSA-6176S-03Y900	B
DS1	5010000160	S.LED	LNJ310M6URA	T
DS2	5010000160	S.LED	LNJ310M6URA	T
DS3	5030002610	LCD	L3-0200HAY	T
MC1	7700002480	MICROPHONE	SKB-2746 LPC	T
S1	2230001060	S.SWITCH	EVQ-PUL 02K	T
S2	2260002840	SWITCH	SKHLLFA010	B
S3	2260002800	S.SWITCH	SW-167 (SKQTLAE010)	B
S4	2260002800	S.SWITCH	SW-167 (SKQTLAE010)	B
S5	2260002800	S.SWITCH	SW-167 (SKQTLAE010)	B
S27	2250000180	ENCODER	EC10SP16-47	B
EP1	6910015370	S.BEAD	ACZ1005Y-102-T	B
EP3	6910015370	S.BEAD	ACZ1005Y-102-T	B
EP4	6910015370	S.BEAD	ACZ1005Y-102-T	B
EP5	6910015370	S.BEAD	ACZ1005Y-102-T	B
EP6	6910015370	S.BEAD	ACZ1005Y-102-T	T
EP7	8930063020	LCD CONTACT	SRCN-2721-SP-N-W	T
EP10	0910057142	PCB	B 6099B	
EP11	6910015370	S.BEAD	ACZ1005Y-102-T	T

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

[PA UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
Q701	1560001230	S.FET	RD07MVS1	B
Q702	1560001240	S.FET	RD01MUS1	B
Q703	1530000370	S.TRANSISTOR	2SC3356-T1B	T
Q704	1530003260	S.TRANSISTOR	2SC5006-T1	T
D701	1750000580	S.DIODE	1SV307 (TPH3)	T
D702	1790001670	S.DIODE	RB706F-40T106	T
D703	1790001670	S.DIODE	RB706F-40T106	B
D704	1790001260	S.DIODE	MA2S077-(TX)	B
D705	1790001240	S.DIODE	MA2S728-(TX)	T
L701	6200002850	S.COIL	NL 252018T-R82J	B
L703	6200009470	S.COIL	0.40-0.9-2TL	T
L704	6200009470	S.COIL	0.40-0.9-2TL	T
L705	6200008240	S.COIL	0.30-0.9-5TL 14N	B
L706	6200003590	S.COIL	EXCCL3225U1	B
L707	6200005690	S.COIL	ELJRE 18NG-F	T
L708	6200005740	S.COIL	ELJRE 47NG-F	T
L709	6200008240	S.COIL	0.30-0.9-5TL 14N	T
L712	6200009070	S.COIL	LQW18AN18NG00D	B
R701	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)	B
R702	7030009140	S.RESISTOR	ERJ2GEJ 272 X (2.7 kΩ)	T
R703	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R704	7030005530	S.RESISTOR	ERJ2GEJ 100 X (10 Ω)	T
R706	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)	T
R708	7030004990	S.RESISTOR	ERJ2GEJ 221 X (220 Ω)	B
R710	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)	B
R712	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)	T
R715	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)	T
R726	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R727	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)	B
R728	7030010040	S.RESISTOR	ERJ2GE-JPW	B
C701	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C702	4030017420	S.CERAMIC	ECJ0EC1H470J	B
C703	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C705	4030006990	S.CERAMIC	C1608 CH 1H 080D-T	T
C707	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C708	4030006860	S.CERAMIC	C1608 JB 1H 102K-T	T
C711	4030009920	S.CERAMIC	C1608 CH 1H 050B-T	T
C712	4030007020	S.CERAMIC	C1608 CH 1H 120J-T	T
C713	4030008560	S.CERAMIC	C1608 CH 1H 300J-T	B
C715	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C716	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C718	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C719	4030016790	S.CERAMIC	ECJ0EB1C103K	B
C720	4030017670	S.CERAMIC	ECJ0EC1H390J	B
C722	4030017420	S.CERAMIC	ECJ0EC1H470J	B
C723	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C724	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C725	4030017420	S.CERAMIC	ECJ0EC1H470J	T
C726	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C727	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C729	4030017360	S.CERAMIC	ECJ0EC1H030B	B
C731	4030017360	S.CERAMIC	ECJ0EC1H030B	T
C732	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C733	4030017360	S.CERAMIC	ECJ0EC1H030B	T
C734	4030017730	S.CERAMIC	ECJ0EB1E471K	T
C735	4030017360	S.CERAMIC	ECJ0EC1H030B	T
C742	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C744	4030009910	S.CERAMIC	C1608 CH 1H 040B-T	T
C745	4030009550	S.CERAMIC	C1608 CH 1H 2R5B-T	T
C750	4030006980	S.CERAMIC	C1608 CH 1H 070D-T	B
C751	4030017380	S.CERAMIC	ECJ0EC1H050B	B
C752	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C753	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C754	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C755	4030007030	S.CERAMIC	C1608 CH 1H 150J-T	T
C756	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C757	4030017460	S.CERAMIC	ECJ0EB1E102K	B
C758	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C759	4030017330	S.CERAMIC	ECJ0EF1C104Z	T
C760	4030017460	S.CERAMIC	ECJ0EB1E102K	T
C761	4030017530	S.CERAMIC	ECJ0EC1H0R5B	T
C762	4030017530	S.CERAMIC	ECJ0EC1H0R5B	T
C763	4030017420	S.CERAMIC	ECJ0EC1H470J	T
J701	6510024390	S.CONNECTOR	IMSA-6176S-03Y900	B
J702	6910015890	CONNECTOR	IMSA-9230B-1-02Z140-T	B

[H]: High-band. [L]: Low-band.

[PA UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
F701	5210000900	S.FUSE	0434003.NRP	B
EP710	0910057152	PCB	B 6107B	
EP711	6910015370	S.BEAD	ACZ1005Y-102-T	T
EP712	6910015370	S.BEAD	ACZ1005Y-102-T	T

[FUSE UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
L901	6200006190	S.COIL	BLM21PG300SN1D	T
C901	4030017460	S.CERAMIC	ECJ0EB1E102K	T
J901	6910015880	CONNECTOR	IMSA-9230B-1-02Z141-T	T
EP910	0910057162	PCB	B 6101B	

[ANT UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
L801	6200010920	S.COIL	0.30-1.2-4TR 15.0N	T
L802	6200010930	S.COIL	0.30-1.2-5TR 21.0N	T
R801	7030003670	S.RESISTOR	ERJ3GEYJ 823 V (82 kΩ)	T
C803	4030007000	S.CERAMIC	C1608 CH 1H 090D-T	T
C804	4030006950	S.CERAMIC	C1608 CH 1H 040C-T	T
C805	4030006940	S.CERAMIC	C1608 CH 1H 030C-T	T
C806	4030009510	S.CERAMIC	C1608 CH 1H 010B-T	T
EP810	0910057752	PCB	B 6140B	

[CHASSIS UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
J1	6910015910	CONNECTOR	ANT CONNECTOR-104	
J2	6910015860	CONNECTOR	IMSA-6277S-02A-G	
SP1	2510001060	SPEAKER	K036NA500-47	
W1	8900009640	CABLE	OPC-963	

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

SECTION 7 MECHANICAL PARTS AND DISASSEMBLY

7-1 CABINET PARTS

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
DS3	5030002610	FX-2721 LCD	1
EP7	8930063020	SRCN-2721-SP-N-W	2
J2	6450001690	HSJ1456-01-220	1
J3	6450001680	HSJ1120-010010	1
R315	7210003060	TP76N00N-15F-10KA-2251	1
S2	2260002840	SKHLLFA010	1
S27	2250000180	EC10SP16-47	1
MC1	7700002480	SKB-2746LPC	1
MP3	8930061890	2721 LCD holder	1
MP4	8210020570	2721 reflector	1

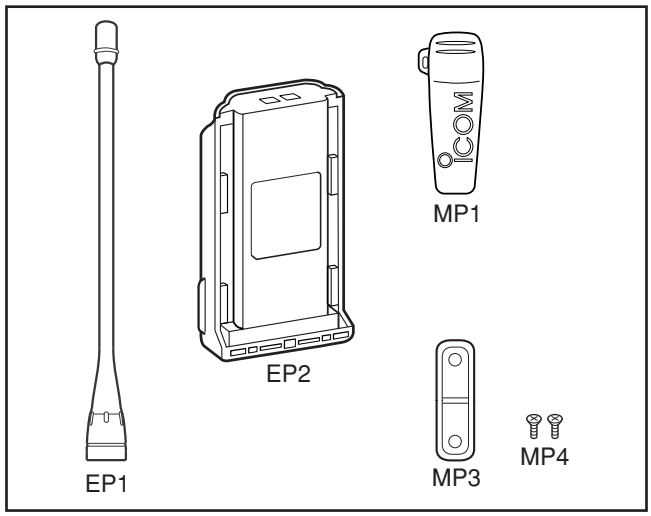
[CHASSIS PARTS]

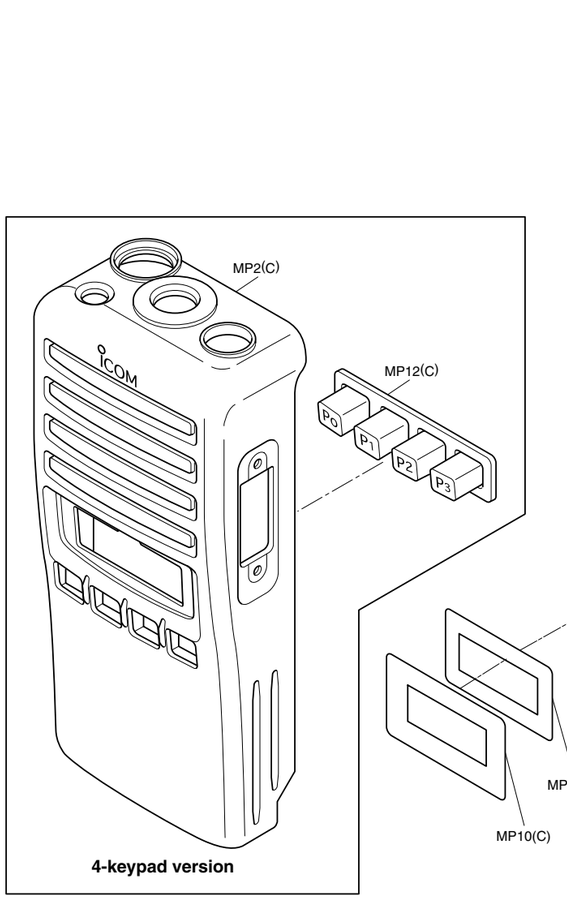
REF. NO.	ORDER NO.	DESCRIPTION	QTY.
SP1	2510001060	K036NA500-47	1
W1	8900009640	OPC-963	1
J1	6910015910	Antenna connector	1
J2	6910015860	IMSA-6277S-02A-G	1
MP1	8010019451	2721 chassis-1	1
MP2	8210020530	2721 T-front panel [10 KEY]	1
	8210020730	2721 S-front panel [4 KEY]	1
MP8	8210020550	2721 rear panel	1
MP9	8310060760	2721 window plate	1
MP10	8930062620	2721 window sheet	1
MP12	8930061790	2721 keyboard [10 KEY]	1
	8930062760	2721 4-Key [4 KEY]	1
MP13	8930061710	2721 main seal	1
MP14	8930063060	2721 terminal rubber	1
MP16	8930061870	2721 side plate	1
MP17	8930061860	2721 top plate	1
MP20	8930061880	2721 mic sponge	1
MP21	8930059360	2600 release button	1
MP22	8930063030	2721 release plate	1
MP25	8830001720	2721 antenna nut	1
MP26	8810009220	Screw B0 2 x 8 ZK (BT)	2
MP27	8810009560	Screw M2 x 6 ZK	2
MP28	8810008970	Screw M2 x 3.5 NI-ZU (BT)	11
MP29	8610011930	Knob N-318	1
MP30	8610011920	Knob N-319	1
MP31	8810010160	Screw M3 x 5 SUS ZK	1
MP32	8930063050	2721 plate-1	1
MP33	8930046020	1123 sheet(A)-1	1
MP34	8930056540	Spring (AH)	2
MP35	8830001700	VR nut (Q)	1
MP36	8830001690	VR nut (R)	1
MP37	8510016360	2721 main shield	1
MP39	8930062230	Sponge(HN)	1
MP42	8930062960	White sheet (R)	1
MP46	8930055690	Sponge(GT)	1

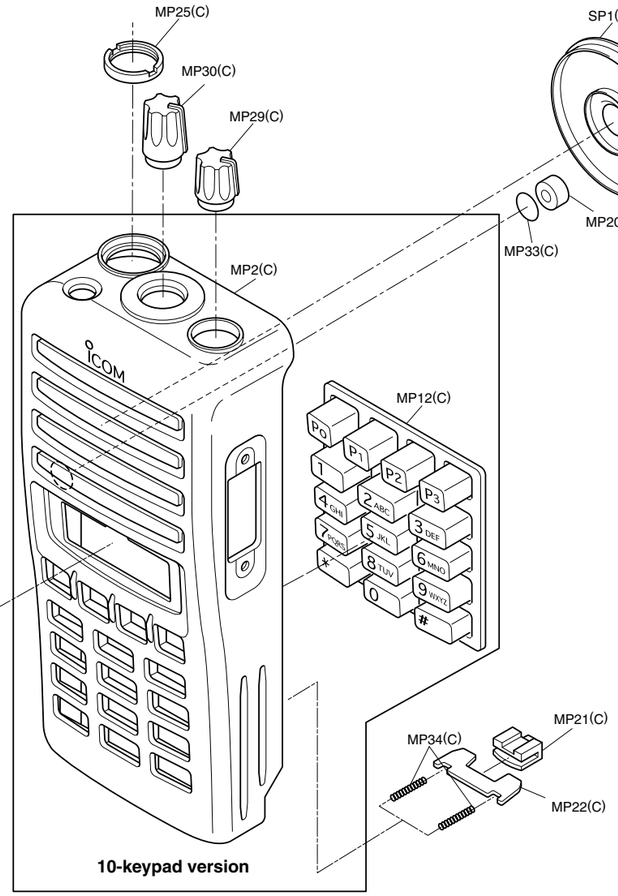
Screw abbreviations B0, BT: Self-tapping
ZK: Black
SUS: Stainless
NI-ZU: Nickel-zinc

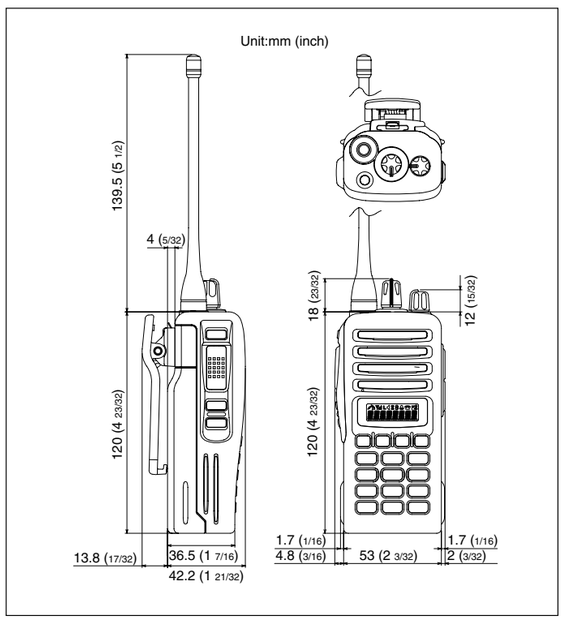
[ACCESSORIES]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
EP1	3310002311	FA-SC25U-1 [Low-band]	1
	3310002291	FA-SC57U-1 [High-band]	1
EP2	0800007550	BP-232 ACC	1
MP1	8010019540	MB-94 ACC	1
MP3	8210020560	2721 JACK PANEL	1
MP4	8810004860	Screw M2 x 6 ZK	2





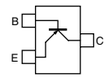
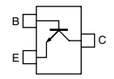
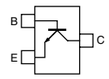
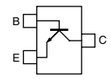
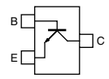
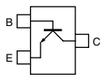
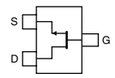
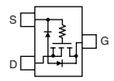
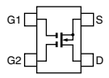
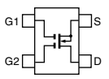
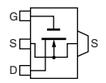
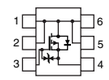
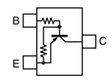
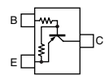
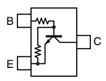
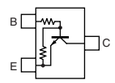
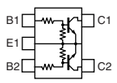
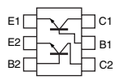




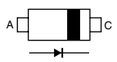
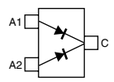
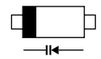
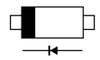
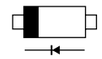
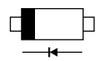
UNIT abbreviation (C): CHASSIS PARTS, (M): MAIN UNIT

SECTION 8 SEMI-CONDUCTOR INFORMATION

• TRANSISTOR AND FET'S

2SA1577 Q (Symbol: HP) 	**2SB1132 Q** (Symbol: BAQ) 	**2SC3356** (Symbol: R22) 	**2SC4116 BL** (Symbol: LL) 	**2SC4215 O** (Symbol: QO) 
2SC4226 R25 (Symbol: R25) 	**2SC5006** (Symbol: 24) 	**2SK880 Y** (Symbol: XY) 	**2SK1829** (Symbol: K1) 	**3SK293** (Symbol: UF) 
3SK299 U73 (Symbol: U73) 	**RD01MUS1** (Symbol: K2) 	**RD07MVS1** (Symbol: RD07MVS1) 	**TPC6103** (Symbol: S3C) 	**UNR9112J** (Symbol: 6B) 
UNR9113J (Symbol: 6C) 	**UNR9210J** (Symbol: 8L) 	**UNR9213J** (Symbol: 8C) 	**XP1214** (Symbol: 9H) 	**XP6501 AB** (Symbol: 5N) 

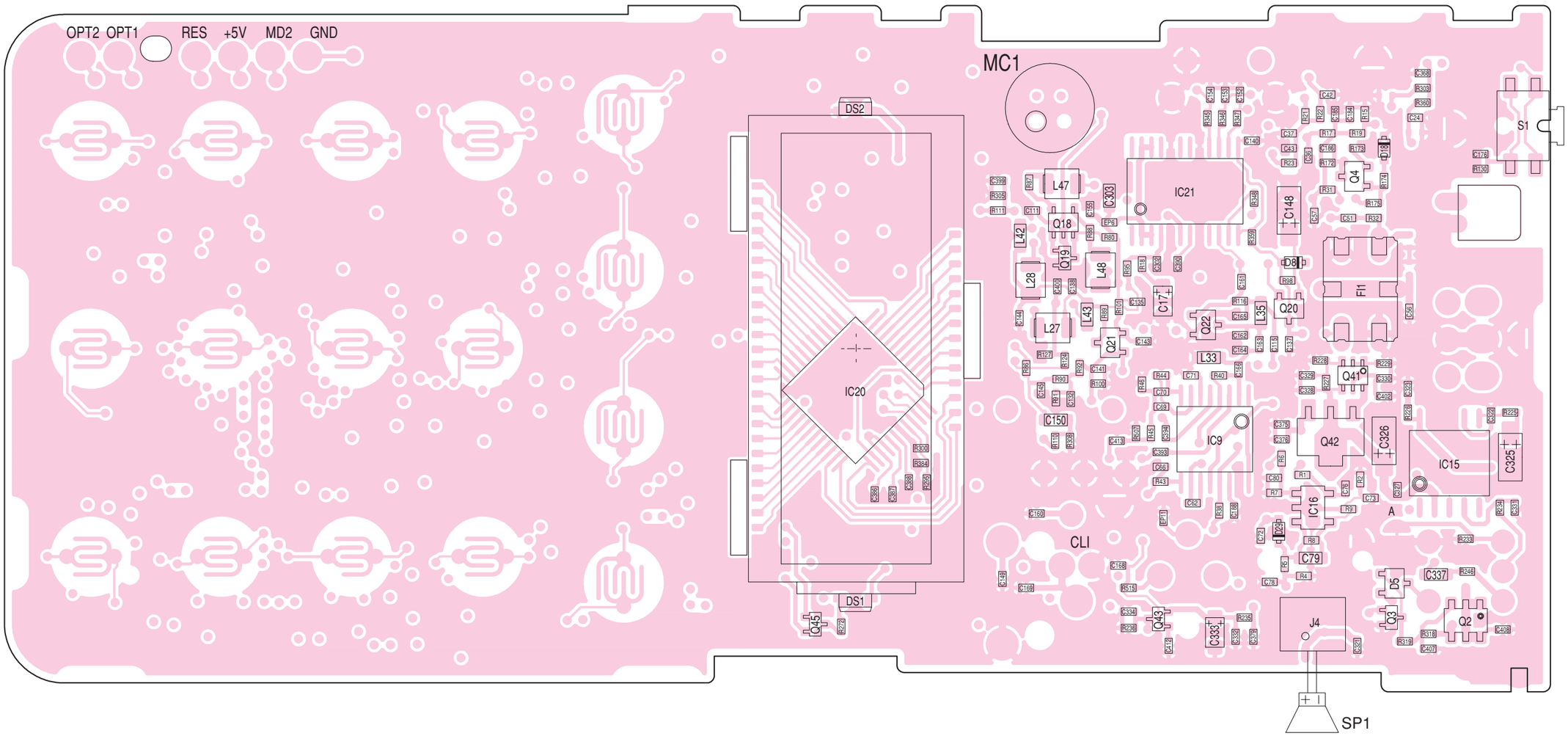
• DIODES

1SV307 (Symbol: TX) 	**DAN202 U** (Symbol: N) 	**HVC350B** (Symbol: B0) 	**MA2S077** (Symbol: S) 	**MA2S111** (Symbol: A) 
MA2S728 (Symbol: B) 	**MA368** (Symbol: 6L) 	**RB706F- 40** (Symbol: 3J) 		

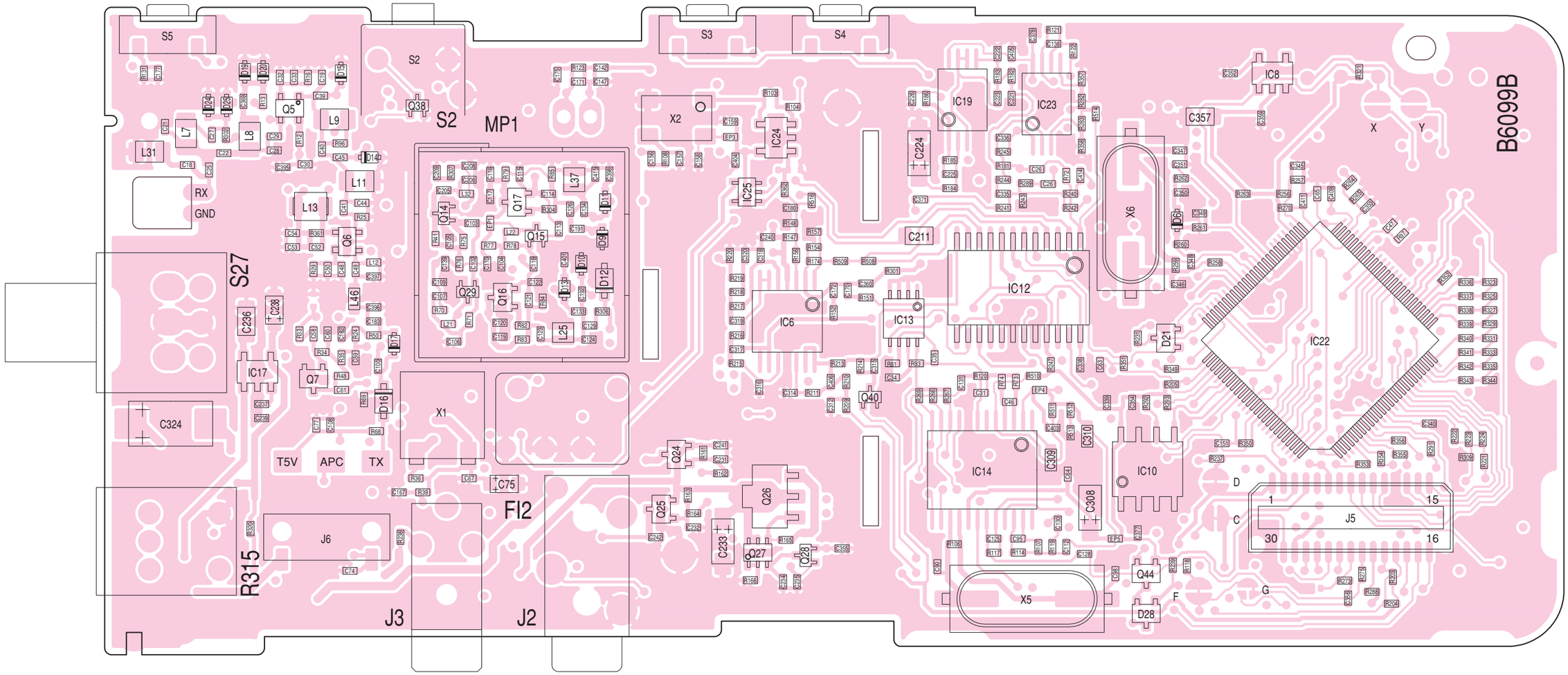
SECTION 9 BOARD LAYOUTS

9-1 MAIN UNIT

- **TOP VIEW**



• **BOTTOM VIEW**



J6
to the PA unit

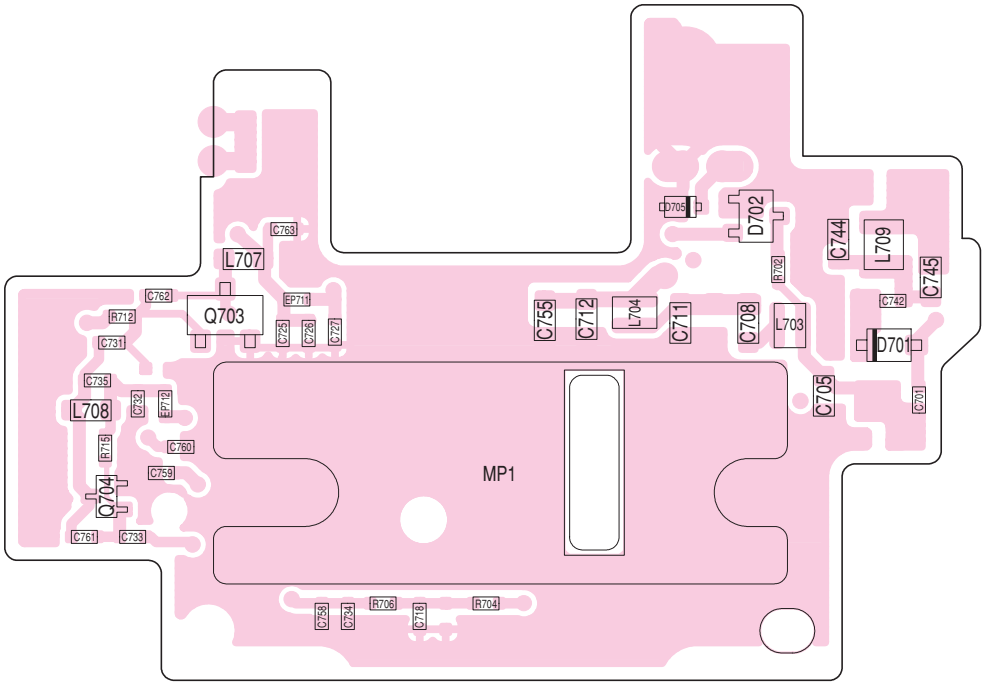
VCC	GND	P_DET
1		3

J5
to the OPTIONAL unit

30	GND	+5V	VCC	MICMUTE	AFONOP	BEEPOUT	RXMUTE	DISCIN	AFOUT	REM	CCS	CIRQ	SO	SI	SCK
	PTTIN	PTTOUT	MICOUT	MICIN	NC	BUSY	NC	SIGOUT	OPT1	OPT2	OPT3	GND	OPV3	OPV2	OPV1	16
	1														15

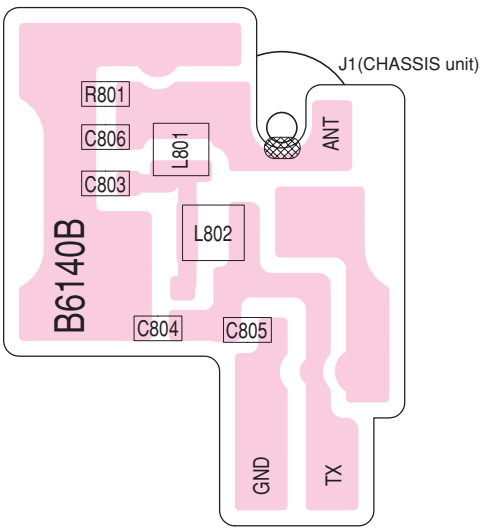
9-2 PA UNIT

- **TOP VIEW**



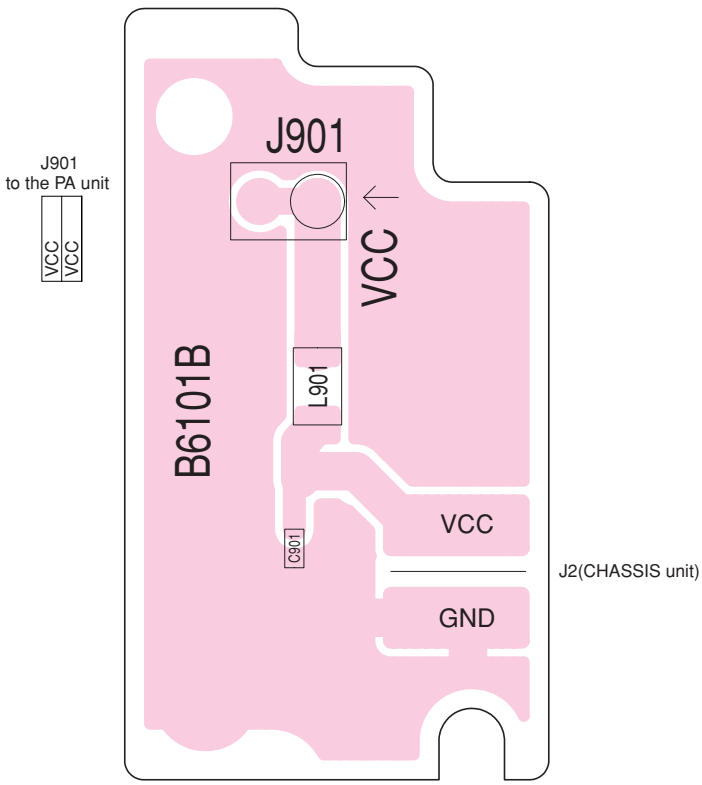
9-3 ANT UNIT

- **TOP VIEW**

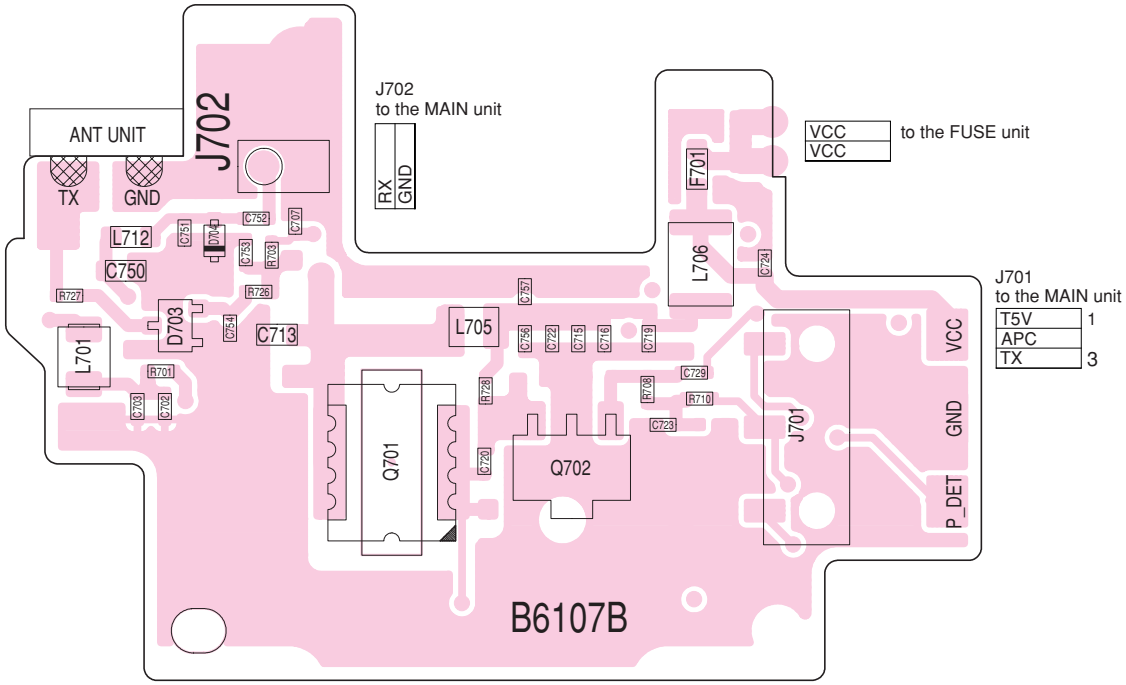


9-4 FUSE UNIT

- **TOP VIEW**

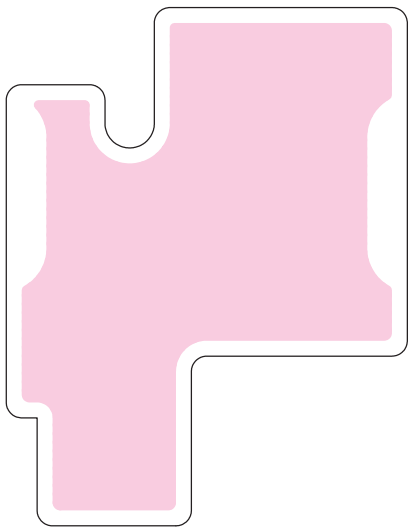


• **BOTTOM VIEW**

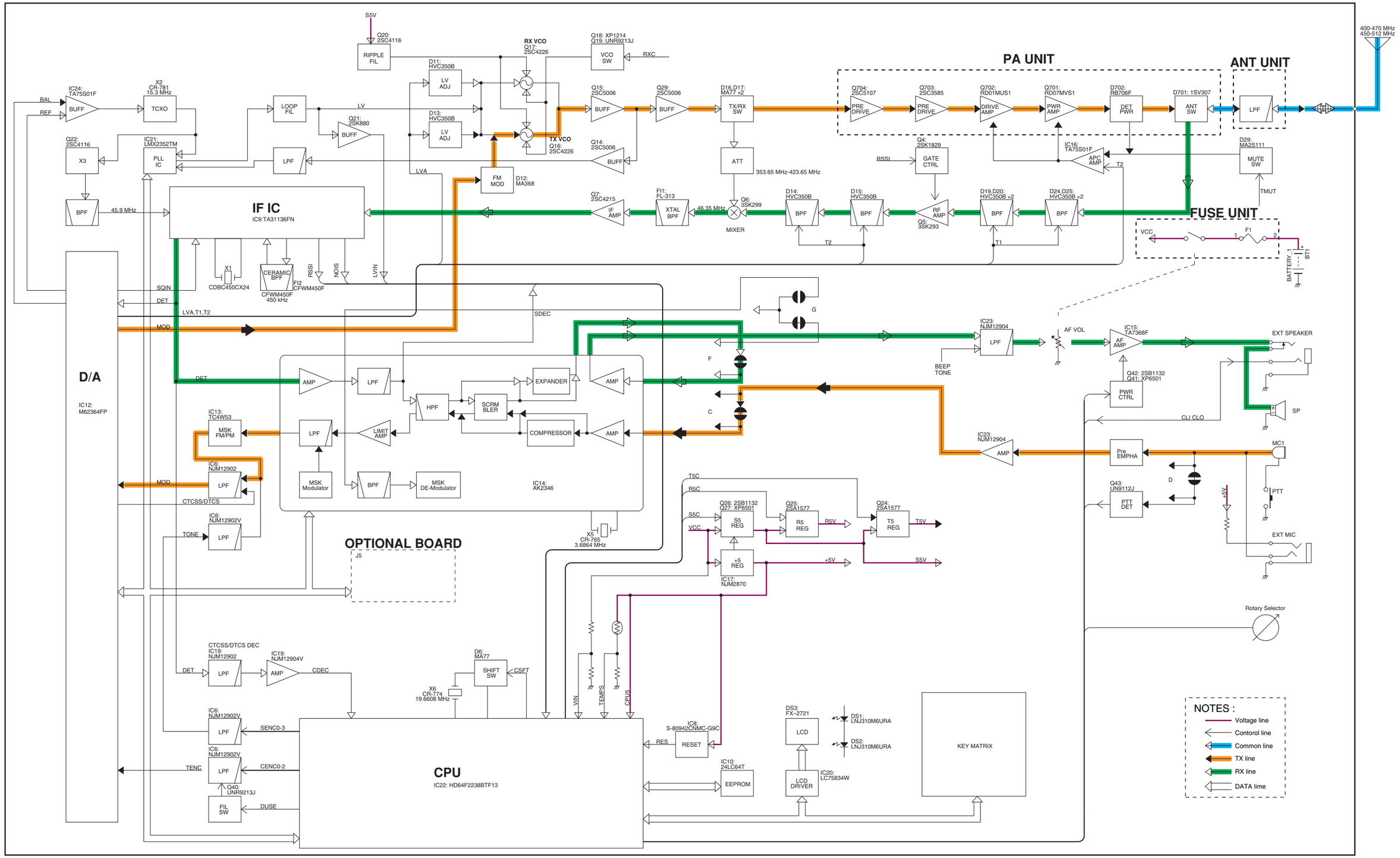


• **BOTTOM VIEW**

• **BOTTOM VIEW**

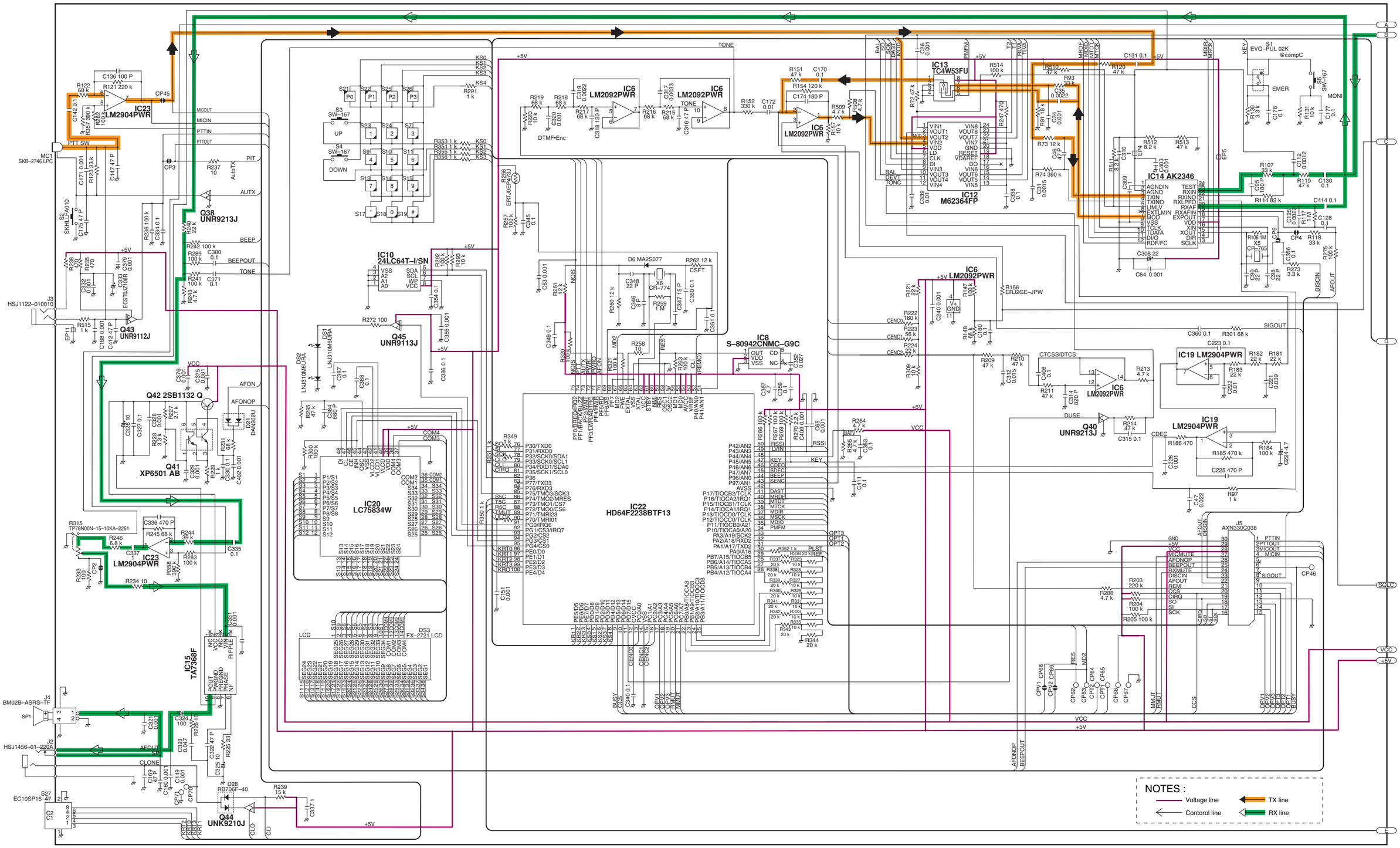


SECTION 10 BLOCK DIAGRAM



SECTION 11 VOLTAGE DIAGRAM

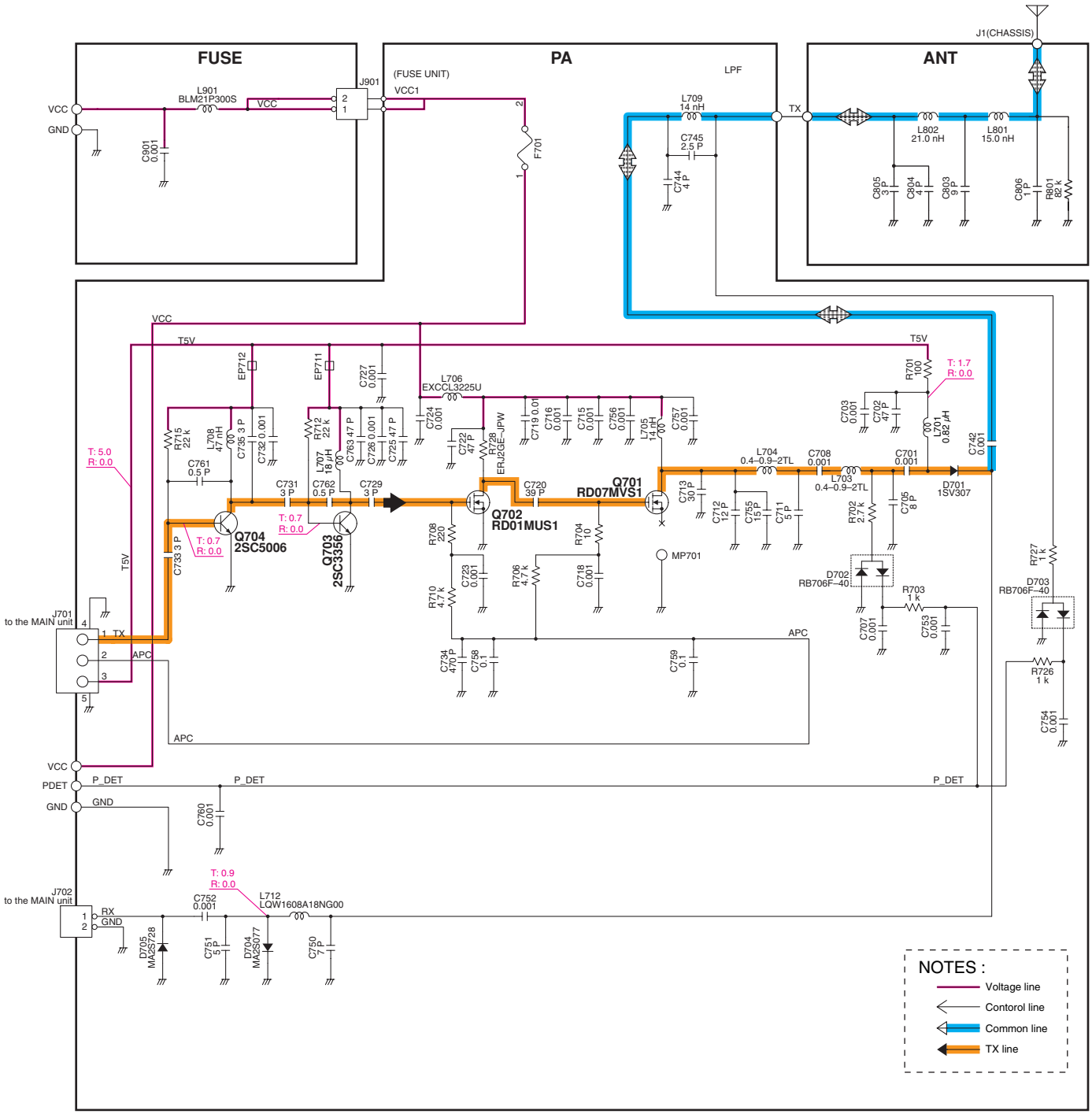
11-1 MAIN UNIT



[H]: High–band. [L]: Low–band.

IC24 TA75S01F3
IC25 TC7S66FU
IC21 LMX2352TM
IC9 TA31136FN
IC16 TA7BS01F
IC17 NJM2870
IC19 LM2904PWR
IC23 LM2904PWR
Q2 TPC6103
Q3 UNR9213J
Q4 2SK1829
Q5 3SK293
Q6 3SK299 U73 MIX
Q7 2SC4215 O IF AMP
Q14 2SC5006
Q15 2SC5006
Q16 2SC4226 R25
Q17 2SC4226 R25
Q18 XP1214
Q19 UNR9213J
Q20 2SC4116 BL
Q21 2SK880 Y
Q22 2SC4116 BL *3 MULTI
Q24 2SA1577 Q
Q25 2SA1577 Q
Q26 2SB1132 Q
Q27 XP6501 AB
Q28 UNR9113J
Q29 2SC5006
X1 CDBC450CX24
X2 CR–781
J6 IMSA–6176S–03A
D5 DAN202U
D16 1SV307
D17 MA3007
D29 MA2S111
D18 MA2S111
D12 MA368
D10 HVC350B
D11 HVC350B
D13 HVC350B
D14 HVC350B
D15 HVC350B
D19 HVC350B
D20 HVC350B
D24 HVC360B
D25 HVC350B
Fl1 FL–313
Fl2 CFWM450F
15.3 MHz 1.2Vp-p
NOTES :
Voltage line
Contorol line
TX line
RX line

11-2 PA / ANT / FUSE UNITS



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